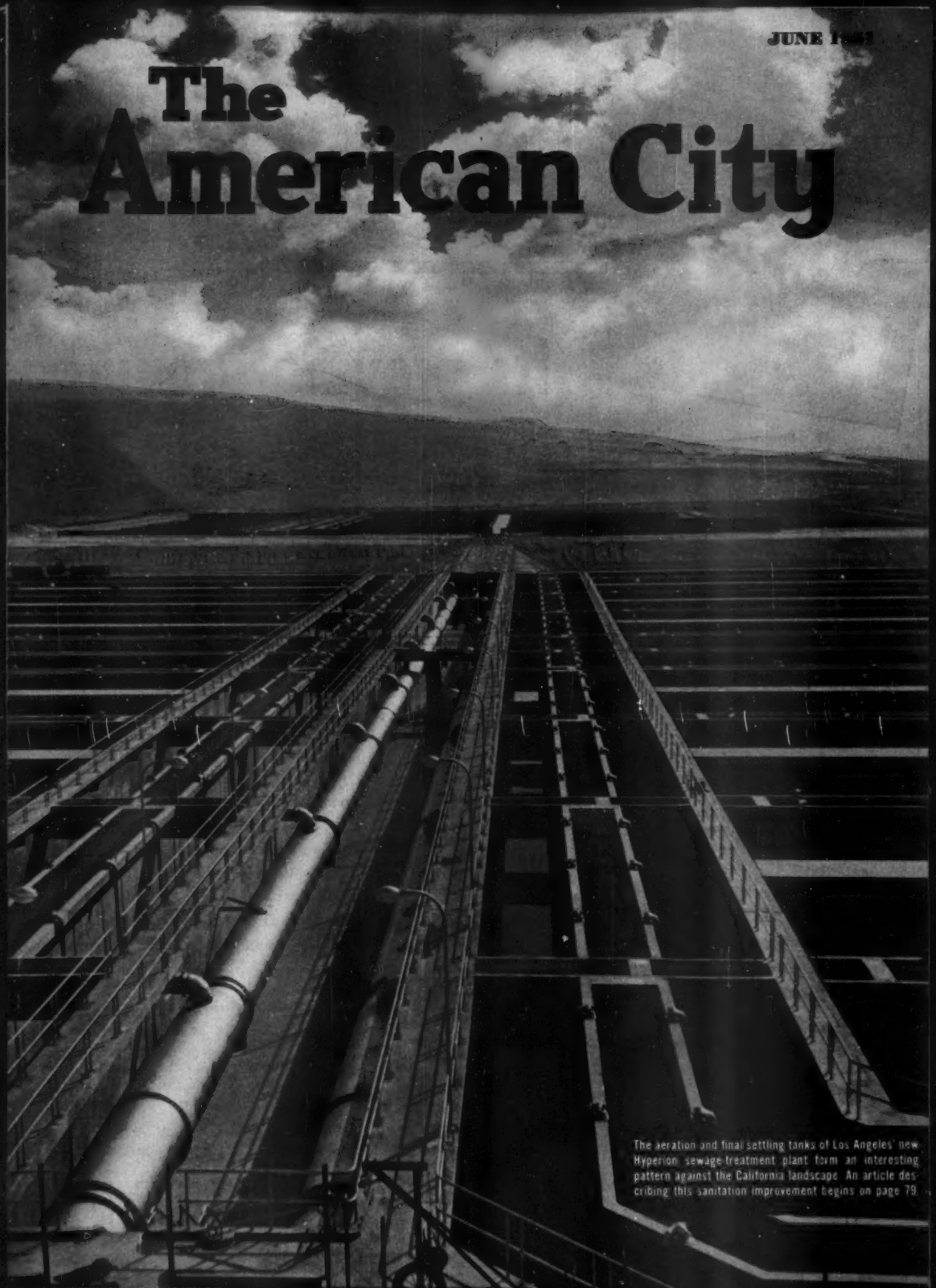
JUNE 1951

The American City



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See pages 21, 23, 25, 28, 30, 32, 155, 157, 159 for catalogs and publications on municipal subjects.

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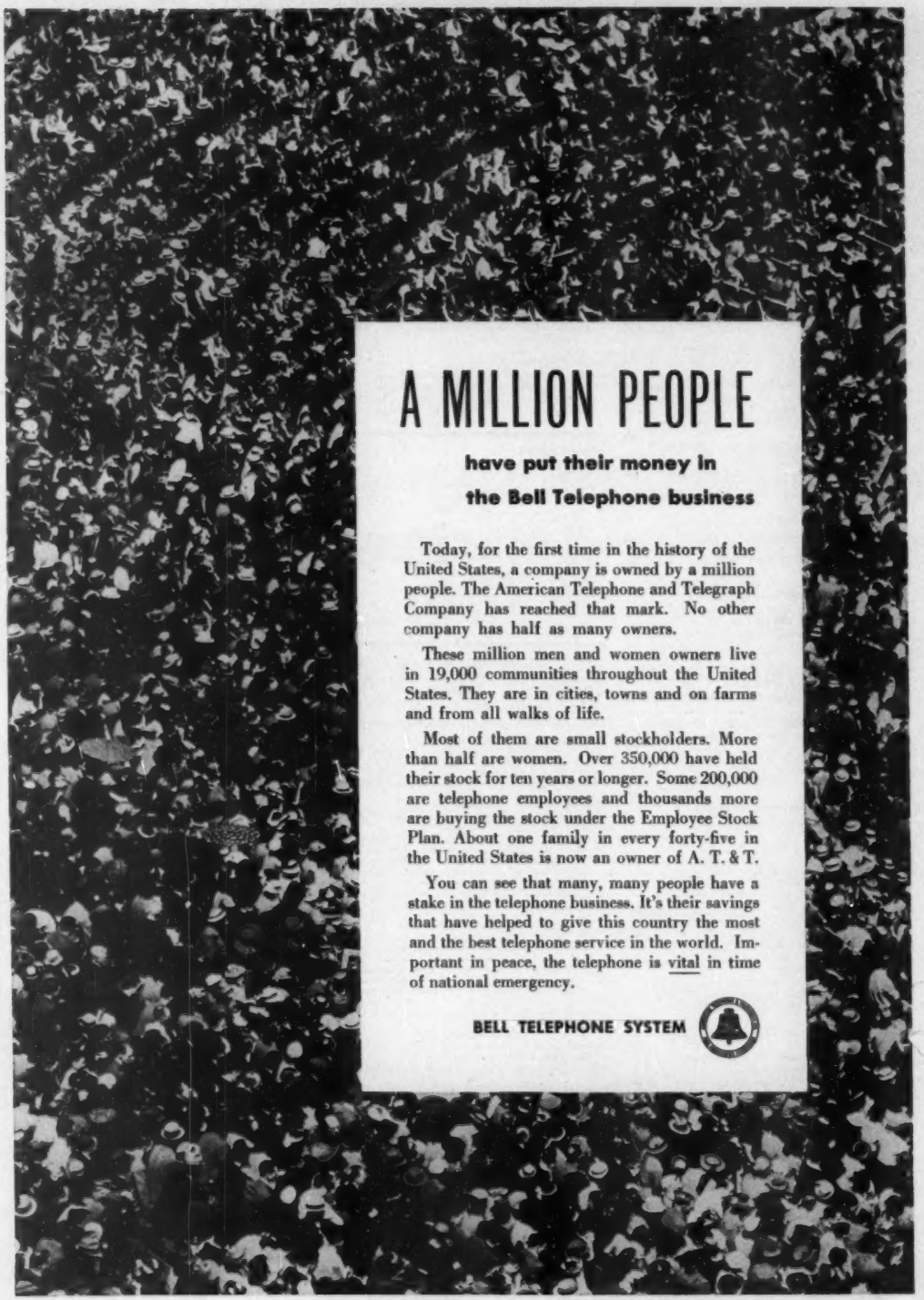
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Our Municipal Notebook

New York Pioneers Again in Zoning

TWO YEARS of thoroughgoing study at a cost of some $300,000 have gone into proposals, made public last month, for rezoning the City of New York. THE AMERICAN CITY is devoting three pages of the current issue to a comprehensive analysis of these proposals.

Many techniques developed in this "Plan for Rezoning" will be very helpful to other cities whose zoning ordinances need modernization. But it seems important to THE AMERICAN CITY to repeat, to its readers in such municipalities, the following warning voiced editorially in the August 1916 issue in hailing the adoption by the City of New York of the first comprehensive zoning ordinance in the United States:

"New York's success in adopting a comprehensive districting plan will no doubt afford great stimulus to similar work elsewhere. But it cannot be too strongly emphasized that other cities will make a serious mistake if they consider the New York restrictions as a standard to be copied in detail. New York has sinned so greatly in the past that its districting has had to be based altogether too much on congested-skyscraper and tenement-house conditions."

The proposed new ordinance, if adopted, will prevent some of the excesses permissible under the ordinance of 1916. But there will still be allowed a degree of land-overcrowding that may be economically or politically necessary in New York, but which other cities would be wise to avoid.

Plugging Leaks in Local Revenue Structures

Cities should not consider new taxes until every effort has been made to plug the leaks in present revenue structures, and until all possibilities of reduction in expenditures have been explored, said Gunnar Alenius, budget officer of the city and county of Denver, at the recent conference of the Municipal Finance Officers Association in Dallas. He declared:

We, as responsible municipal officers have a solemn obligation to seek a reduction of the municipal taxpayers' burden and at the same time to manage and maintain essential services at satisfactory standards and to a degree commensurate with the needs of growing cities. Our present defense economy should be used by every finance officer as a platform from which to launch an effort for tightening and enforcing all fiscal management procedures.

Day-to-day operation of a budget invariably reveals looseness that in ordinary times might possibly be condoned. Whether such looseness affects revenue or expenditure is immaterial; cumulative effects over a year spell substantial cost to a city that cannot be justified in the face of today's bleak picture.

Six questions should be asked by finance officers when examining present revenue sources.

1. How are laws directly or indirectly affecting revenue being enforced?
2. Is the city charging users for special services, and are charges for the city's services of all kinds sufficient to recover costs?
3. Are charges for use of city facilities comparable with commercial rates, or is the city actually subsidizing profitable business ventures?
4. Is the city receiving interest on idle funds, or is it paying for their safekeeping?
5. Have steps been taken to see that the city receives the greatest possible return on disposition of surplus property, real or personal?
6. Is the practice of earmarking funds storing up surpluses for activities that are not vital?

A Public Official's Prayer

Save us from thinking about the next election when we should be thinking about the next generation.

Save us from dealing in personalities when we should be dealing in principles.

Save us from thinking too much about the vote of majorities when we should be thinking about the virtue of measures.

Save us from indulging in catch-words when we should be searching for facts.

Help us to realize that the unborn are part of our constituency, although they have no vote at the polls.

May sincerity inspire our motives and science inform our methods.

May we come with clear minds, clean hands, and courageous hearts to the sacrament of public service.

May we be worthy of the high calling of government.

(From "A Prayer for Those in Government," written for the 1927 session of the Wisconsin Senate, by the late GLENN FRANK, then President of the University of Wisconsin. The complete prayer was published in THE AMERICAN CITY for August 1927.)

Unique Conference on "Living in Industrial Civilization"

A NOTABLE approach towards widening the area of agreement among industrialists, labor leaders, educators, scientists, philosophers, editors, and others, as to workable solutions of present-day problems, was made in Corning, N. Y., on May 17-19 at a unique conference on "Living in Industrial Civilization."

Host to this forward-looking gathering was the Corning Glass Works, which also signalized its centennial year by dedicating the nearly completed Corning Glass Center. This contains the world's most comprehensive museum and library of glass products and glass-making demonstrations, and will also provide educational and recreational facilities for Corning.

The program for the three-day conference was developed under the direction of Dr. Charles E. Odegaard, Executive Director of the American Council of Learned Societies. The conference was opened by Amory Houghton, Chairman of the Board, Corning Glass Works, and by Arthur A. Houghton, Jr., President, Steuben Glass, Inc.

To help point the way to constructive measures aimed at a fuller and better life and a greater hope for the future, the hundred or more conferees met in six general sessions and in three sessions each of four round-table groups. The themes tackled were: "Work and Human Values," "Leisure and Human Values," "The Individual's Sense of Community," and "Confidence in Life"—all with primary reference to modern industrial civilization.

For each round table a background paper was circulated in advance of the conference, and each group had its "rapporteur" whose summary, plus stenotype notes of each session, will be helpful in the volume of proceedings planned for publication next fall.

No participant in this remarkable conference at Corning could fail to be impressed with the value that could be derived if other industries and educational institutions throughout the

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May 7, 1951

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Jack Ammann Photogrammetric Engineers
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San Antonio 2, Texas

Dear Mr. Ammann:

I believe that you will be interested in knowing how valuable the topographic maps of Snyder, Texas, which you compiled for me, have been to the overall project in redeveloping this city. These maps at a scale of 1" = 200' showing 5' contours were invaluable throughout the entire project.

First, as you know, it was a matter of saving time on this job since the sanitary conditions for the City of Snyder, due to the oil boom, had become so bad that it was necessary for us to get construction started as early as possible on the disposal plant and the expansion of the collection system to take care of the original townsite area and many subdivisions that were being added just outside the old city limits. With the information that we were able to take from your map we were able to have the sewer plant and collection system under contract ($370,370.65) within thirty days after the bonds were voted to pay for this work. By any other method this would have taken from four to six months.

As for the costs involved to me, I believe that your maps reduced the costs that would have otherwise been incurred by at least 30%, but our main saving was accomplished by the fact that your map, delivered in only a fraction of the time that would have been required to have obtained the necessary data by ground methods, was accurate enough that we could design our collection system and then stake it from the information obtained from the map.

I feel that the maps which you prepared were very satisfactory for our needs and requirements, and when we have a job of this nature again, we will proceed in a like manner.

Yours very truly,

Jas. V. Curnutte

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United States would bring together, from time to time, gatherings similar in character, even though necessarily on a smaller scale. In such meetings leaders in business and labor and academic thought, by exploring the paths towards a meeting of minds in the public interest, could do much in behalf of finer communities and better living in our industrial civilization.

City Planning Exhibit Available for Local Use

THE *Architecture of the City Plan*, a traveling exhibition circulated by the Museum of Modern Art, New York City, is available for local showings during the 1951-1952 season. During the past year, the exhibition was shown eight times, and it starts the new season by opening in Nashville, Tenn., on September 14.

The exhibition consists of 29 panels of enlarged photographs accompanied by an explanatory text to illustrate the fundamental principles of city design which have given emotional and visual satisfaction to men from ancient times up to today. These principles are shown in the arrangement of buildings, plazas, streets, monuments, and parks in cities built to meet differing social, economic, and political needs in various countries and in successive historical periods.

The show occupies 150 running feet, rents for $85 for three weeks, and weighs 354 pounds packed. Further information can be obtained from the Museum of Modern Art, 11 West 53rd St., New York 19.

Philadelphia Metropolitan Planning Body Formed

A SOUTHEASTERN Regional Planning Commission has been formed composed of four counties (Bucks, Chester, Delaware, and Montgomery) adjacent to the City of Philadelphia. At a meeting in April it was agreed to establish a 12-member board consisting of the presidents of the Boards of County Commissioners, the chairmen of the County Planning Commissions, and four other members (appointed by the County Commissioners), one from each county.

The counties will share equally the expenses of the first year's budget for the Commission—$27,100. One of the Commission's major functions will be to avoid duplication in the work of the County Planning Commissions and to make recommendations on matters that are of joint interest. The Commission's proposals will be advisory only, and ordinances implementing its program must be adopted by the respective County Commissioners. First projects will include preparation of base maps and other reference material, as well as representation of the area in Washington, D. C., and at the State Capital.

The Philadelphia City Planning Commission and the City of Philadelphia are not included in the organization's structure at the present time.

Recreation Conference Held in Nebraska

A CONFERENCE on Recreation Leadership Training, held at the University of Omaha on April 13 and 14, proved so successful that new plans are being made for additional programs to provide the stimulus needed for recreation leaders in the Omaha area, reports E. F. Gorr, of the University's Department of Physical Education and Athletics. Tentative arrangements call for a workshop in which those enrolled can get more practical training and experience over a longer period.

The University's first conference began on Friday morning, with a talk on the "Philosophy of Recreation" by Arthur Todd, District Field Representative, National Recreation Association. The 75 persons in attendance then divided into groups for demonstration, discussion, and participation in four phases of recreation, including physical activities, arts and crafts, story telling and literature, and recreational music. Registrants could take part in three of the four areas of activity.

Ralph McClintock, Superintendent of Parks and Recreation for Omaha, presented an interesting discussion on "Problems of Administering Recreation Programs" during the second session, and a speech by Dr. Edythe Hall, Principal of Kellom School in Omaha, on "Tools of Recreation," featured the third and final session.

Films on Rat Control And Sewage Treatment

THE Federal Security Agency, Public Health Service, in Atlanta, Ga., reports that its Communicable Disease Center has released 16 mm. motion pictures on "Rural Rat Control" and "Municipal Sewage Treatment Processes." These can be purchased through United World Films, Inc., 1445 Park Avenue, New York, N. Y., and are available on short loan, without charge, from the Communicable Disease Center in Atlanta.

"Rural Rat Control" shows how rats live on a farm and what can be done to eliminate them. It describes how a farmer may deny food and shelter to rodents by ratproofing buildings and food sources, and by burying garbage in a one-man sanitary landfill. The motion picture points out how

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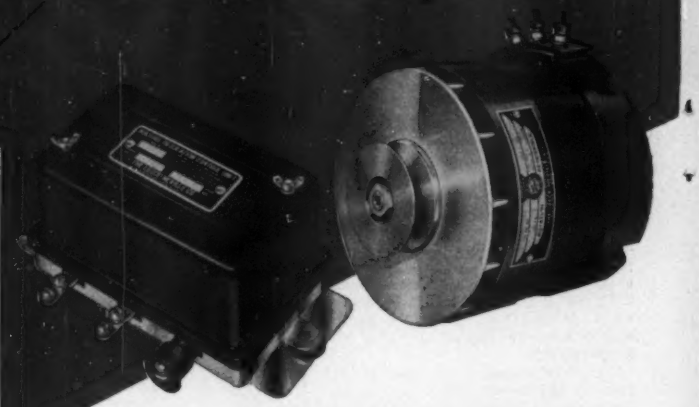

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"Municipal Sewage Treatment Processes" depicts basic methods of sewage treatment that will prevent sewage from polluting streams or becoming a health menace. This film shows the equipment and processes which reduce sewage to harmless effluent and solids, thus protecting health and conserving water resources. It also explains how the largest solids are intercepted and removed from the sewage.

Still a Model Tax System Thirteen Years Later

RECENTLY the wife of a member of THE AMERICAN CITY staff had occasion to call on Ralph W. Latham, Receiver of Taxes of the Township of North Hempstead, N. Y. On her departure, Mr. Latham presented her with a copy of this magazine for June 1938, containing his article on the township's then new tax-collecting system.

At that time, 13 years ago, properties in the 30 villages incorporated in the township were valued at $195,000,000. There are now 31 villages and the assessed valuation is $375,664,474, not including the veterans' exemptions amounting to $2,291,257. There were 38,000 taxpayers and 100,000 parcels, compared with over 55,000 taxpayers now and 150,000 parcels due to acreage developments.

In 1938, the taxes totaled $2,248,578 for schools, and $4,183,183 for county, town, and special-district purposes. In 1950 they were $7,781,890 for schools, and $6,631,415 for county, town, and districts. Teachers' salaries, which had been $1,800 to $2,700, are now $3,300 to $4,700.

The same method of billing and accounting for taxes prevails today, and the system continues to be a model, visited by officials of other municipalities. Names, addresses, and property descriptions are printed on the bills and on all tax notices by Addressograph. There are four Graphotype machines and four supplemental hand machines for making individual plates, as well as the two Addressograph machines for running off the bills.

The tax data are computed and printed on the bills, individual ledger cards, and tax roll by Burroughs tax-billing and accounting machines. The original four Burroughs machines that inaugurated the new system are still in operation. They have, however, been joined by five additional machines of the same make, for a present total of nine tax-accounting machines.

Tax payments are acknowledged by Burroughs receipting machines. There used to be three; now there are six.

Not only is North Hempstead's mechanized tax system as smooth and efficient as when first instituted, but so also are the people who run it. Mr. Latham continues in the office of Receiver of Taxes. William H. Otto, who was Accountant, is Deputy Receiver of Taxes. Charles O. Lewis is Accountant. The growth of the work and equipment has been recognized by the officials, and a connecting building is scheduled for early erection.

ANY attempt to halt all public housing in favor of private housing, or to halt all private housing in favor of public housing, would not be consistent with the best interests of the nation's defense program.—GERALD J. CAREY, *Executive Director, New York City Housing Authority.*

Chicago Humanizes Redevelopment Program

A TECHNIQUE increasingly used to encourage youth interest and participation in local government affairs has been given a new twist. The practice of having groups of youngsters "take over" key positions in the city government for a day is now widespread. But in Chicago, on May 8, a 13-year-old South Side boy acted as executive director of the Chicago Land Clearance Commission, holding this office as part of the annual Youth Week program.

Jeremiah Polk, the youngster, an outstanding student and a sports champ, was accompanied by Jesse Owens, the Olympic track star who is now executive director of the South Side Boys' Club. Ira J. Bach, executive director of the Land Clearance Commission, took the opportunity to explain the Commission's operations and to tell about how it has purchased three-fourths of a 20-block site in the South Side on which the New York Life Insurance Company will build 1,404 apartments, a shopping center, and parking facilities.

Housing and redevelopment authorities in other cities might do well to explore the use of this and similar techniques as a means of "humanizing" their operations for the general public.

Dirt, Disease, Degradation, and Despair

THIS alliterative designation of the products of a typical slum, coined by the late Sir Raymond Unwin, is suggested as worth quoting in local campaigns for urban redevelopment. So also is this paragraph from a 1950 report of the Committee on the Hygiene of Housing of the American Public Health Association:

> The frustration which results from overcrowding, conflict between the desires and needs of various members of the family, fatigue due to the performance of household duties under unfavorable conditions—these are health menaces quite as serious as (if less obvious than) poorly heated rooms or stairs without railing. The sense of inferiority due to living in a substandard home is a far more serious menace to the health of our children than all the unsanitary plumbing in the United States.

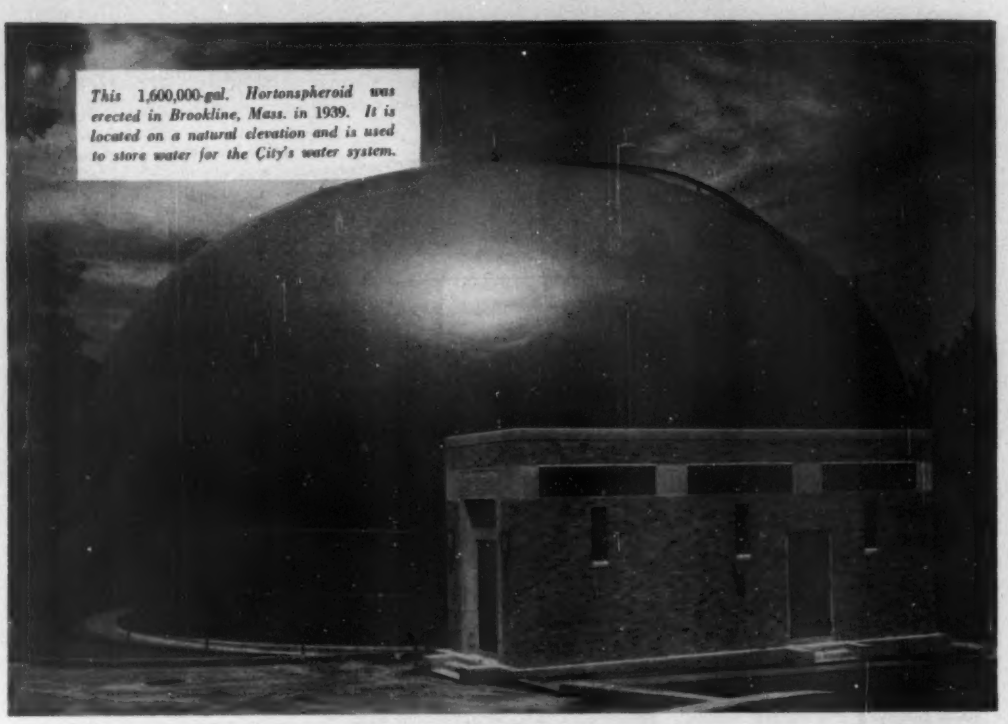
That, of course, does not call for any halt in the battle against unsanitary plumbing—but it does mean, as pointed out in the February 1951 issue of *Regional Plan News*, that in setting minimum standards for a healthful home for a family, the Committee has sought to do more than provide for obvious health requirements, such as sanitation, heating, air circulation, illumination, precaution against accident hazard, and has recognized the importance to mental and emotional health of providing against overcrowding.

Mankind has shown its ability to subdue the forests and tame the jungle. Can we not be equally successful in subduing the slums and taming the blighted areas?

New Federal Controls On All Construction Work

ON MAY 3, a new order of the National Production Authority took effect—an amendment of the basic M-4 construction order—requiring that every public or private project using more than 25 tons of steel obtain a permit from the NPA before work begins. The steel total specified includes everything from nails to pipe to reinforcing bars. No types of project are excluded from the order.

Permits are now also required for housing—for apartment buildings over three stories high and for single-family homes costing more than $35,000. The new amendment is designed to permit a degree of control over steel usage before the Controlled Materials Plan takes effect this summer. In explaining the new order, Manly Fleischmann, NPA administrator, said that he believed substantial amounts of steel will be made available for schools and hospitals, but that steel for highways will receive sharp cutbacks.



This 1,600,000-gal. Hortonspheroid was erected in Brookline, Mass. in 1939. It is located on a natural elevation and is used to store water for the City's water system.

Tank Economies Begin with the PHOSCOTE PROCESS

The Phoscote process is a proven method of cleaning and preparing the surfaces of steel plates and shapes before erection. It removes mill scale from steel and provides a better bond between paint and metal.

Plates for this Hortonspheroid in Brookline, Mass., were first dipped into a hot sulphuric acid bath to remove mill scale. Then a clear water rinse removed residual sulphates from the surface of the steel. Finally a hot phosphoric acid bath deposited a thin coat of iron phosphate on the plates. While the metal was still warm, a prime coat of paint was applied to protect the cleaned surfaces.

Field inspections of many Horton installations throughout the country indicate that steel treated by the Phoscote process does not corrode as fast as the plates in tanks built of untreated steel and the paint lasts much longer. This results in lower maintenance costs and increased tank life.

When you order Horton steel structures, be sure to specify the Phoscote process.

Brookline Hortonspheroid before final painting. The unpainted edges of the plates along the seams and the abraded spots were given a patch coat of priming paint before the final coats were applied.

HORTON

WELDED STEEL

STORAGE TANKS

CHICAGO BRIDGE & IRON COMPANY

Plants in Birmingham, Chicago, Salt Lake City, and Greenville, Pa.

Atlanta 3	2114 Healey Bldg.	Los Angeles 17	1503 General Petroleum Bldg.
Birmingham 1	1502 North Fiftieth Street	New York 6	3308-165 Broadway Bldg.
Boston 10	1002-201 Devonshire St.	Philadelphia 3	1616-1700 Walnut Street Bldg.
Chicago 4	2127 McCormick Bldg.	Salt Lake City 4	501 West 17th South St.
Cleveland 15	2236 Guildhall Bldg.	San Francisco 11	1533—200 Bush St.
Detroit 26	1501 Lafayette Bldg.	Seattle 1	1301 Henry Bldg.
Havana	402 Abreu Bldg.	Tulsa 3	1625 Hunt Bldg.
Houston 2	2181 National Standard Bldg.	Washington 6, D. C.	1163 Cafritz Bldg.

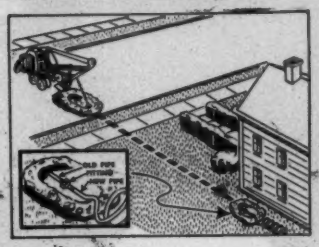
Water Supply and Treatment

Pipe Replacement Method Saves Landscaping

CIVIC improvements in Miles City, Mont., called for paving and replacing curbing and gutters along nine miles of scattered city streets. Prior to paving, however, city officials ordered the replacement of old, rusted, galvanized-iron water-service connections with new flexible copper pipe. Homeowners in the affected area expected the worst in damage to their lawns and shrubs by conventional trenching methods. They were pleasantly surprised, however, when they saw how the plumbing and sewer subcontractor did the work.

Using a truck-mounted Schield Bantam trench hoe, the contractor opened short trenches in the street from the main to the curb, exposing the house service-connections. The shut-off valve was then closed at the curb. The old pipe was disconnected inside the house, and a new flexible copper tubing, in rolls, was connected to it by means of a special temporary fitting. The street end of the old pipe was hooked to a chain fastened on the middle of the trench-hoe stick, and was then pulled out with Bantam's drag drum. Thus, the new copper tubing was automatically "threaded" through the old pipe cavity without damage to the landscaping.

After the copper pipe was installed, the ditch was backfilled by a special blade attached to the trench hoe, and the trench was then puddled with water. The rubber-tired Bantam did the final leveling by driving over the curb



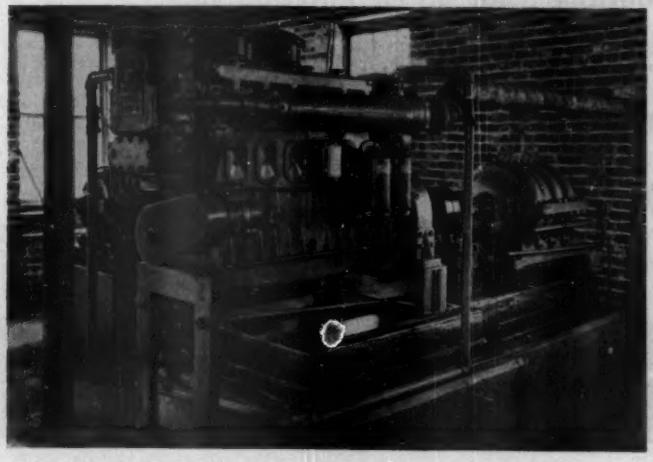
and running back and forth with dual tires. This trench hoe is manufactured by the Schield Bantam Company, of Waverly, Iowa.

The Mechanical Thumb In the Dyke

WHEN a dam springs a leak, you either put your thumb over the leak as did the little Dutch boy, or you take steps to plug the opening by good modern means.

To remedy a severe leak that developed in the Thiensville Dam, 12 miles north of Milwaukee on the Milwaukee River, township officials called on Mud Jack contractor Frank Sharkey. Using a Model 10 Koehring Mud Jack, Mr. Sharkey pumped approximately 85 cubic yards of a 6:1 mixture of sandy top soil and cement under the surface of the dam. This brought the leakage down to an estimated 5% of the amount that it was previously.

Eighty-five cubic yards of material are pumped into the Thiensville Dam when leaks must be plugged.



Reserve Power For Lincolnton, N. C.

JUST to play safe in case of an electric-power breakdown, Lincolnton, N. C., owns an independent pumping unit for standby in their water-supply system. The unit occupies a small space, but provides plenty of power. It consists of a 6-cylinder General Motors diesel engine driving a Dayton-Dowd pump. It is operated for one hour each day to assure its availability whenever it might be needed.

The city water department, serving a population of 6,000, draws on surface supply and wells for water. The surface supplies are treated by rapid sand filtration before distribution.

Standby unit ready for service.

Made of malleable iron. Single massive bolt. All sizes, 1/2" to 12" inclusive. For steel, cast iron and Transite pipe.

M. B. SKINNER COMPANY

SOUTH BEND 21, INDIANA, U. S. A.

SKINNER-SEAL SERVICE SADDLE

Refuse Collection and Disposal

Working on the Levee

SULPHUR SPRINGS, Texas (population 9000), combines refuse disposal and flood control by using its refuse as filler in building levees along a near-by creek. Formerly, the city burned its refuse in open dumps; now it operates an International TD-14A tractor and a Drott Bullclam unit to build sanitary fills in low spots around the city. The levees are from 7 to 10 feet high, and the lowlands in back of them will be brought to grade by sanitary fills at some time in the future.

Commercial Disposer Pays for Itself

PRIOR to August 1945, when we installed a Jeffrey Garbridder here at the Hotel Fort Hayes, in Columbus, Ohio, we were placing our garbage in cans at the back of the hotel, and even though we had a concrete place built to house these cans, there were always a lot of flies and rats. We are rid of all of them now.

We installed our machine in the basement, providing a chute to it from the kitchen. In the kitchen we built a good-sized, stainless-steel box, and over the top of it we built a canopy of stainless steel. Thus, the garbage, instead of having to be hauled to the machine, is dumped into this chute and automatically goes into the basement through the machine and into the sewer.

This machine has paid for itself. Observation of food waste as it enters the chute makes the kitchen staff far more conscientious, and eliminates much of the usual waste of foods. Also, we have noted a considerable saving in silver. As silver will damage the machine, the person who is disposing the garbage watches more carefully for it.

I am sure that any institution that makes a similar installation will be pleased with the results. As stated before, the machine eventually pays for itself, and at the same time keeps the kitchen clean and eliminates an objectionable nuisance.

R. I. GRIFFITH, *Managing Director*
Hotel Fort Hayes
Columbus, Ohio

Correction

IN THE article, "Los Angeles Experience Favors Central Garbage-Grinder Stations" which appeared on page 122 of the April issue, the Districts' proposed figure is "two tons of wet garbage per hour for each cubic foot per second of sewage flow in a trunk sewer." In the final rush of copy preparation we began seeing double and recorded it at 22 tons.

Benefits for City Ownership of Garbage Containers

REFUSE-COLLECTION problems are less onerous to administer if the city owns the garbage containers. This was one of the observations of the Kansas State Board of Health in a survey of refuse sanitation in that state. The survey appears in the February *Kansas Government Journal*. It was conducted by Ivan F. Shull and James F. Aiken of the State Board of Health.

The report acknowledged that city ownership of the cans involved a higher outlay of capital. Most cities, however, did not enforce garbage and refuse ordinances as they apply to storage facilities, and thus the method will generally result in better sanitation in the storage areas.

Hutchinson, Kans., provides this type of service. A portable can-washing machine covers the entire city once each 10 days. Kansas City, Mo., upon request, furnishes a "can exchange service" to any property owner for a small added charge.

How an Incinerator Will Solve Binghamton's Refuse Problems

BINGHAMTON, N. Y., has one particularly well-located refuse disposal site, known as Stowe Flats. Without an incinerator, this disposal area will be exhausted by 1953; if certain other adjoining area is developed, it will be adequate until 1958.

However, if Binghamton builds an incinerator, the present area will be adequate until 1956, and the larger area will serve until possibly 1970. These were among the findings of S. P. Carman, Binghamton consulting engineer, in a report to the city recommending proper refuse-disposal practices. Thus, he feels, an incinerator is needed, preferably prior to 1953.

The cost of operating an incinerator on a single-shift basis will be roughly $43,000 for labor, electric power, and miscellaneous building and equipment repairs and maintenance—but not including depreciation or financing. This is the equivalent of about $1.27 per ton, based on the annual processing of 34,000 tons of combustible refuse and garbage.

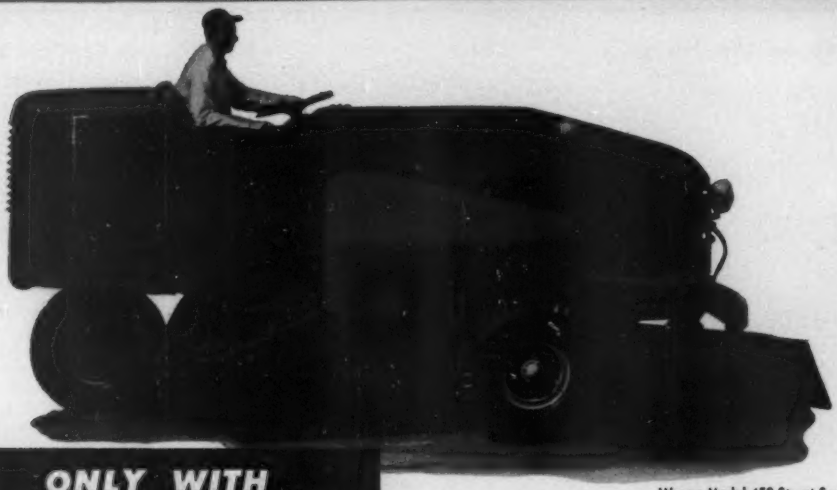
Mr. Carman recommended that the incinerator be the mechanically stoked crane-and-bin type, and be capable of processing mixed combustible refuse at the rate of 109 tons in eight hours. Such an incinerator, he estimates, will cost no more than $700,000.

The study showed no economic value in attempting to utilize the heat from the incinerator for generating electric power, or for generating of steam unless a potential user can be discovered that the present study does not reveal. The heat, however, can be used to meet space-heating and hot-water requirements in the incinerator itself, and in a signal headquarters building which the city proposes to erect on the incinerator site.

Mr. Carman's analysis of the collection system indicated that the non-combustible refuse should be collected separately from the combustible garbage and refuse. Enclosed refuse-compacting trucks also were recommended, along with facilities for weighing all refuse delivered to the disposal site.

In his study, Mr. Carman analyzed seven different methods of refuse disposal. These were: hog feeding, garbage reduction, biological reduction, grinding of garbage, dry dumping, sanitary land fill, and incineration.

STREET SWEEPING AND FINAL DIRT DISPOSAL AT JUST 78¢ PER MILE!



Wayne Model 450 Street Sweeper

ONLY WITH WAYNE CAN YOU EXPECT SAVINGS LIKE THIS!

BECAUSE *ONLY WAYNE* combines *the effective capacity and the speed* to make low-cost central dumping practical, you can expect—and get—savings like those recently reported by the city of Lake Worth, Florida. Here, one man and a WAYNE Pick-Up Sweeper eliminated the work of three men and a truck. The City Manager reports:

"The Sweeper was placed in operation November 15, and has since collected 520 loads of dirt and sand, or 1560 cubic yards. The operation covered 901 miles at a total cost of $719.20—46c per cubic yard, or 78c per mile."

You can't pass up savings like these! No matter what method of street sanitation you are now using, if you want to clean more curb miles per day at lower cost you'll do better with a WAYNE. It sweeps and hauls away *at traffic speeds* to final disposal over 3 cubic yards of dirt per trip... makes economical central dumping pay dividends... saves equipment and manpower.

Regardless of the size of your city, it will pay you to find out how WAYNE can help you with your street sanitation problem. Write for descriptive literature—sent without obligation on request.

MORE THAN 200 CITIES are using WAYNE Sweepers for economical street sanitation. Outstanding Model 450 features include: Rear wheel steering for maneuverability... largest effective hopper capacity of any sweeper... low body design for full forward vision... forward 42" gutter broom...full floating broom suspension. *For details on a dozen other WAYNE features—write today.*

WAYNE PICK-UP SWEEPERS

Sold and serviced throughout the United States by a fine distributor organization.

WAYNE MANUFACTURING COMPANY
MANUFACTURERS OF STREET SWEEPERS
1201 East Lexington Street, Pomona, California

Sewerage and Sewage Treatment

What Industrial Wastes Can a Sewage System Receive?

IF THE system is a big one, explains Isadore Nusbaum, Supervising Sanitary Chemist of the Detroit, Mich., sewage-treatment plant, it can receive neutralized acid wastes along with the precipitated solids formed on neutralization with little fear of difficulty. Inflammable and explosive wastes must be excluded. However, they generally represent the loss of a valuable product, so the correction is not long delayed.

Grease, oil, and tarry substances also should be removed to a reasonable limit before entering the sewers. Mineral oils also should be removed. These present a problem to the sewers; they pass through the treatment plant unchanged and cause unsightly pollution problems.

Wastes containing small amounts of cyanide may be accepted in large sewerage systems without pretreatment. Where quantities of waste contain high cyanide concentrations, such as copper or zinc cyanide plating solution, these may be diluted into the sewer at a low rate, thus preventing high concentrations and precluding the possibility of receiving shock loads at the treatment works.

As development in treatment appears today, phenols should be kept out of sewage, if at all possible. No suitable means for reducing phenols to a satisfactory level in the effluent from an industry located on a municipal sewer system has yet been devised, although there is now some promise, according to recently announced research on chlorine in the treatment of phenolic wastes.

At present, industry should be required to remove all readily separable oil, and the remaining emulsion may be discharged at a low rate into the municipal sewers.

These conclusions were presented by Mr. Nusbaum at the 1950 annual meeting of the Michigan Sewage and Industrial Wastes Association. The complete discussion appeared in *Sewage and Industrial Wastes*, Vol. 22, p. 1587. They represent work that he performed as Senior Assistant Civil Engineer in the City Engineer's Office.

McAlester, Okla., Records Vacuator Performance

FIGURES of approximately 45% reduction in suspended solids, and 24-25% reduction in BOD, represent the way that the Dorrco Vacuator is operating at McAlester, Okla. The unit represents the first important step in the treatment of the sewage and is immediately followed by a roughing filter. The sewage averages close to 200 ppm in suspended solids and 160 ppm in BOD. The sewage flow averages about 500,000 gallons per day. The minimum average is 330,000 gallons daily; the maximum is nearly 1,000,000.

The treatment starts at a bar screen, continues at an aerator and the Vacuator. The Vacuator effluent goes to a roughing filter and then to a primary clarifier; the effluent from the clarifier goes to a low-rate trickling filter and then to a final clarifier. The final effluent has an average of 5-15 ppm of suspended solids and 11 ppm of BOD, representing well over 90% removals.

The Vacuator is with the equipment located between the two clarifiers, and is shown in detail in the inset.

For AIR RAID WARNINGS
THE DIAPHONE
IS THE IDEAL PUBLIC ALARM

A PUBLIC ALARM OPERATED BY COMPRESSED AIR

Characterized by:

Great Sound Producing Power —Audible Range and Sound Penetration

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Distinctive Tone

•

Effective Coding of Signals

•

Reserve Capacity

•

Operability under all conditions

Modern warfare is not confined to fields of battle—entire populations are involved . . . Instructions must be given to the civil defense forces . . . Warnings to the populace of impending air raids must be given swiftly and effectively if lives are to be saved . . . In such emergencies coded signals given by sound with centralized control and by skilled operators provide the swiftest and most dependable means of disseminating intelligence throughout a municipal area.

The GAMEWELL DIAPHONE, pre-eminent for 40 years as a public alarm, is ideally adapted for sounding Air Raid Warning signals. Existing municipal wires may be utilized for air raid alarm without impairment of their normal service.

Requests for information from authorized Civil Defense officials are welcomed.

Public Safety

New Radios for Old In Fire and Police Divisions

By C. V. BULLS
Electrical Engineer
Department of Public Safety
Norfolk, Va.

CHANGEOVER from amplitude modulation to frequency modulation in the police and fire communication systems of the City of Norfolk, Va., was completed on February 5, 1951. Two important modernization features were effected. These were the establishment of a new central-files bureau for the police, including all communications, and higher operating efficiency in the fire bureau.

Prior to the installation of the new FM equipment, both the police and fire divisions were operating 46 two-way cars and 21 motorcycles with receivers on the same frequency and employing the simplex method, i.e., base-station and mobile units transmitting and receiving the same frequency of 37.1 megacycles.

The new equipment selected for the two communication systems was Motorola's "Sensicon Line," with instantaneous deviation control and adjacent channel operating features, for the 152-164 megacycle band.

Police Radio

While the police division's new communication system, embracing 46 two-way, 30-watt mobile units; 20 two-way (Motorola Dispatcher) motorcycle units, and two 250-watt base-station transmitters, is now operating simplex, the two base-station transmitters were specially designed for dual-frequency operation, which can readily be accomplished by the addition of transmitting and receiving crystals and installation of additional antenna for the second frequency. The base-station transmitters are controlled by a specially designed duplex control console which permits certain advantageous features: transmitter selection, frequency choice, and intercommunication, so arranged that two dispatchers may use either or both transmitters, on either or both frequencies from either or both console positions, when desired. The associated mobile equipment is so designed that dual-frequency features may also be added with minor modification.

According to Police Chief A. Leroy Sims, "the conversion from old to new radio transmission coincided with establishing a new Central Files Bureau in the police division, which now includes all communications. Extensive physical changes in Police Headquarters brought the radio-dispatcher room close to the Central Files, the telephone switchboard, the teletype machine, and the complaint room, which are all controlled by one senior police officer."

Fire Radio

The fire division's communication system, operating simplex in the 152-164 megacycle band, 1.6 megacycles below the police frequency, consists of one 120-watt, base-station transmitter, remotely controlled; sixteen 30-watt, two-way mobile units; and two ¼-watt, battery-operated portable Handie Talkie units.

A much higher degree of efficiency can be noted in the operation of the Fire Division [according to Fire Chief R. L. Woolard] since the installation of new FM radios with our individual transmitter operating on an assigned frequency allotted for the fire division. This permits direct and instant communications and much clearer reception than that of the old AM system. These modern features play a major part in fire prevention, reduced fire losses, and conservation of our apparatus. They help in our never-ending fire drill and school activities.

Usually upon arrival of the first responding company, a fire can be sized up as to need for additional companies. If the fire is minor and the responding companies are not needed, the new FM system notifies them to turn back to quarters, thereby conserving expensive apparatus. I would say that the initial cost will prove a profitable investment.

Any company equipped with a two-way FM-radio communication system may be permitted to carry on their drill and school work with direct communication at their finger-tips at all times. Our entire fire service recognizes the great value of modern radio communications.

Both the police radio-system and the fire radio-system have been operating faultlessly since installation. The new equipment, while representing an appreciable initial cost to the city, has greatly increased operational efficiency and proportionately decreased the maintenance and inventory costs of the two public-safety divisions of this city's government.

This is taken from the R.I.P., 1951 booklet of The Travelers Insurance Companies, Hartford, Conn., in which they combine statistics with fantasy.

Crime Problem in Your Town?

THE SOLUTION of the crime problem is a simple matter: Enforce existing laws fairly and impartially, vigorously and relentlessly, and mobilize the full force of every medium of education as to the facts about crime.

Are there slot machines in drug stores and restaurants? Does gambling thrive? Are there bookmaking joints on every corner? Who controls the numbers racket? Is vice kept at an irreducible minimum, or does it contaminate most sections of the city?

I have no sympathy with the position of those who constantly are urging against the publication of information on crime. In fact, I would urge the dissemination of more information on crime which puts crime in its proper perspective and reveals it in all its horror and filth and revolting character. Only in that way can public lethargy be forced into action.

Those who engage in widespread vice activities and rackets could not long survive without their ally—the political renegade.

J. EDGAR HOOVER, *Director*
Federal Bureau of Investigation
United States Department of Justice
Washington, D. C.

ADAMS MOTOR GRADERS

For Building and Maintaining Streets

ONLY ADAMS OFFERS ALL THESE OUTSTANDING ADVANTAGES

- 8 Overlapping Forward Speeds
- High-Arch Front Axle for Clearance
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- Positive Mechanical Controls
- Wide Range of Blade Adjustments
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In hundreds of cities and towns, the country over, Adams Motor Graders are saving time and money on all types of projects . . . building, rebuilding and maintaining city streets and alleys — backfilling over sewers, water mains and gas pipes — leveling playgrounds, parks, parking areas, etc. . . . You'll find in the Adams line a model with the right power and right capacity to meet individual needs exactly. Ask your local Adams dealer for complete information on the machine best suited to your requirements.

J. D. ADAMS MANUFACTURING CO., INDIANAPOLIS, IND.

Make your next motor grader an **Adams**

Use Expansion Joints Sparingly

CONCRETE is strong in compression. It is unnecessary to provide expansion joints to relieve compressive stresses to the extent that contraction joints or hinged joints relieve tensile and flexural stresses. In fact, laboratory and field data show that under normal conditions no expansion space or very little expansion space is required to protect concrete pavements from actual stresses due to restraint when inert, noncompressible matter is prevented from entering contraction joints or cracks. If contraction joints, properly spaced and maintained, are provided to control cracking and infiltration, and only normal construction materials are used, no expansion space is needed.

Concrete pavement is normally placed in warm weather with temperatures of 70° F. or more in the concrete at time of hardening. Subsequently, under brilliant summer sun the temperature may rise to 120° F. The coefficient of thermal expansion of concrete being about 0.0000055 per degree F., each inch of slab will attempt to expand 50 times 0.0000055 inches, or 0.000275 inches with the 50-degree rise in temperature. If this expansion is now allowed to occur and if the modulus of elasticity of the concrete is 4,000,000 pounds per square inch, the compressive stress which will develop would be 1,100 pounds per square inch. If this stress developed, it would be of little significance in pavement concrete having a compressive strength of 5,000 pounds per square inch, but under good maintenance conditions it will not develop.

During hardening of the concrete and subsequent drying, the pavement slab shrinks, opening contraction joints and leaving space for a considerable amount of expansion before restraint is encountered. If this space is preserved, the compressive stress which would occur following a 50-degree rise in temperature will be much less than 1,100 pounds per square inch.

The compressive stress which does develop is not harmful, but is distinctly beneficial to the pavement. It reduces the opening and assures satisfactory load transference at the contraction joints. It also tends to reduce tensile stress in the top or bottom of the slab, if either happens to be under tension due to flexure caused by loads. When covered pavements break in flexure under load, the break is due to the tension in either top or bottom of the slab. An all-over compressive stress due to restrained expansion will reduce the tension and increase the load-carrying capacity of the pavement. The compression will not always be present, but to the extent that it is present, it will reduce the number of critical stress repetitions which may occur and thus increase the life span of the pavement.

Are these joints necessary? This discussion indicates that they are not.

Expansion joints can therefore be omitted or used at long spacing in pavements placed during the normal construction season and of materials having normal expansive properties. If it is known that the materials in use have high expansion coefficients, or if the pavement is placed at low temperatures, a limited amount of expansion space may be needed. Under these conditions, ¾-inch expansion joints at intervals ranging from 300 to 600 feet should provide the required relief, the spacing within this range depending upon the severity of the special conditions which are thought to make the use of expansion joints necessary. The filler used for expansion joints should be nonextrusive.

In unreinforced-concrete pavement, contraction joints of the dummy-groove type should be used at intervals which will control cracking. Local experience is the best guide as to the spacing required, but it will usually be 15 to 20 feet. If the spacing is too great, intermediate cracks will form. These cracks are not serious structurally, but are more difficult to keep sealed against infiltration of incompressible materials.

Perfection in sealing of contraction joints is not practical or necessary, but the joints should be designed and constructed so as to facilitate their sealing in maintenance operations. The most satisfactory type of contraction joint is the open groove, ¼ to ⅜ inch in width and of a depth equal to ¼ to ⅓ the pavement thickness. This groove is sealed after the concrete hardens but before the road is opened to traffic, by pouring with a suitable plastic material. The groove should be edged with a radius not greater than ¼ inch and it should not be overfilled.

If contraction joints are used at spacings which will control cracking, the slab lengths will be so short that the amount of shrinkage or contraction in each slab will produce only a small opening of the joint. The interlocking of the aggregate particles across the face of the joint will provide a substantial amount of load transference which, under most conditions, will make unnecessary the use of dowels in the contraction joints.

From "Concrete Pavement Design," by the Portland Cement Association, 33 W. Grand Avenue, Chicago, Ill.

Waukesha, Wis., Adopts Machine-Laid Surfacing

MACHINE-LAID sand mixes will probably be used in the future to maintain the streets of Waukesha, Wis., even though the costs may be a little high, according to W. E. Dick, City Engineer. The more thorough mixing that provides longer life to the wearing surface and better riding qualities will result in lower maintenance cost.

Maintenance of Waukesha's paved streets varies from $500 to $750 per mile, while unpaved streets require maintenance costs varying from $1,600 to $1,800 per mile. Seal coating in the past has been performed by the "inverted penetration method," in which about a quarter of a gallon of cut-back asphalt or tar is applied by a pressure distributor, and about 25 to 30 pounds of sand or rock chips over the asphalt.

The surfacing is Colprovia cold-laid sheet asphalt, and was placed by a Barber-Greene paver. Payne and Dolan, Inc., Waukesha contractors, did the work.

One-half of the costs for maintenance are met by state aids received for streets. These aids also help pay for snow removal and street cleaning, but are entered in the budget as General Revenue to reduce the amount of taxes levied for all items. The budgeted per capita cost of street and alley maintenance is $2.63 per annum.

Better air compressor performance under ALL operating conditions...

LONGER DRILL LIFE
For longer drill life and more footage drilled at lower cost, use *Texaco Rock Drill Lubricants EP.* These "extreme pressure" lubricants give full protection against wear and rust under severest conditions.

with TEXACO air compressor oils

Whatever your operating conditions or the size or type of your compressors, there is a Texaco air compressor oil *exactly right* to assure trouble-free and economical performance. For example—

★★ If *rust* is your problem, use a Texaco *rust-inhibited* air compressor oil. It will keep your compressors, intercoolers, aftercoolers, lines and receivers free of rust.

★★ If *carbon and gum formations* are causing trouble, use a Texaco *heavy-duty* air compressor oil with special detergent and oxidation-resistant properties. It will keep compressors clean under severest conditions.

★★ If *moisture is condensing* in cylinders and washing off your lubricant, causing excessive wear, a Texaco *compounded* air compressor oil will overcome the difficulty.

★★ If your concern is merely to assure clean operation and reduce wear under *normal conditions*, a Texaco *straight mineral* air compressor oil will do an excellent job.

A Texaco Lubrication Engineer will gladly help you select the right air compressor oil for your requirements. He'll also be glad to tell you how the Texaco Simplified Lubrication Plan enables you to handle all your major lubrication needs *with only six Texaco Lubricants.* Just call the nearest of the more than 2,000 Texaco Distributing Plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants and Fuels
FOR ALL CONTRACTORS' EQUIPMENT

TUNE IN . . . TEXACO STAR THEATER starring MILTON BERLE on television every Tuesday night. See newspaper for time and station.

Get What You Want—No Charge!

Please check over the list of interesting free catalogs on this and following pages. To obtain the literature you want, write directly to the manufacturers at the addresses given. If you prefer, you may circle the identifying numbers on this coupon and mail to THE AMERICAN CITY, *470 Fourth Ave., New York 16, N. Y., and we will see that catalogs are sent to you without expense or obligation.* 6/51

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Name ..... **Position** .....

Address .....

Civil Defense Communications

500 A new General Electric brochure pictorially presents typical communications systems now in use which can be coordinated into a dependable emergency communications network in any community. Copies are available from Dept. N-5, G-E Advertising Division at Electronics Park, Syracuse, N. Y.

Water Supply Wells, Pumps

501 Layne & Bowler, Inc., Memphis 8, Tenn., has prepared new literature on its wells and pumps for water supply. Among the booklets are those describing the company's well-water systems, short-coupled service pumps, oil-lubricated vertical turbine pumps, cemented wells, stainless-steel and monel-metal shutter screens, irrigation pumps, and Layne chemical treatment for water wells.

Traffic Line Marker

502 Air Curtains, basic feature of all Kelly-Creswell equipment, make possible the application of clean-cut, attractive lines without coming in contact with the surface. Also featured are special striping guns by De-Vilbiss, air actuated traction and pressure-cleaning equipment. To help solve your zone-marking problems, write to Kelly-Creswell Co., Xenia, Ohio.

Street Sign Strapping

503 Gerrard's No. 2114 sign bracket adaptable for small diameter poles is described in literature issued by the A. J. Gerrard & Co., 1952 Hawthorne Dr., Melrose Park, Ill. This model has a 5/16-inch-extruded tapped hole. Its chief feature is that regardless of the pole diameter, the strap securing the bracket is in contact with at least 67% of the pole's circumference. It is furnished in galvanized finish and stainless steel.

For Cleaning Sewers

504 The Expanding Sewer Machine Co., Nappanee, Ind., has published its Catalog No. 52 describing its sewer cleaning equipment. The Expanding root cutter and sewer cleaner is adjustable in 30 seconds to fit any sewer from 8 to 30 inches. It will clean the entire sewer wall, top, and sides as well as the bottom, cutting and removing the roots and caked sediment, and putting the sewer in almost 100% clean condition. Write for your copy of the catalog.

Steel for Municipalities

505 Despite current shortages, Joseph T. Ryerson & Son, Chicago 80, Ill., reports that it is prepared to do its best in supplying steel for municipalities and public works. The firm's principal products include carbon steel bars, structurals, plates, sheets, tubing, alloys, stainless, babbitt, and machinery and tools. Write for descriptive literature.

Eight Overlapping Speeds On This Motor Grader

506 Especially adapted for maintaining city streets and alleys, and leveling playgrounds, the Adams motor graders have eight overlapping forward speeds. They have a high-arch front axle for clearance and positive mechanical controls. The J. D. Adams Mfg. Co., Indianapolis, Ind., produces the machine which has a wide range of blade adjustments and balanced-weight distribution.

Makes Street Repairs Faster

507 Speed in patching streets is a feature of Standard Steel "S-J". Produced by Standard Steel Works, North Kansas City, Mo., it performs every maintenance function—spray shoulders, relocate curves, patch chuck holes, seal coat, and secondary construction work. Powered by a 7.2-hp or 15-hp engine equipped with a 100-gpm pump, this model will handle any type of material with equal efficiency. Fast heating is assured by two powerful burners which supply intense heat through 5-inch heat flues. Write for Catalog "S-J," when querying the manufacturer.

Mechanical Joint Water Gate Valves

508 M & H mechanical joint valves for water works can be installed into existing pipelines easily and quickly by common labor using mechanical joint cutting-in sleeves. These valves have long life and require little or no maintenance cost. They are obtainable in sizes from 2 to 30 inches with all end connections. The M & H Valve and Fittings Co., Anniston, Ala., will send descriptive literature on request.

Street Lighting Lamps

509 Amplex street lighting lamps are specifically designed and built to withstand the constant vibration and jolts of traffic. Amplex weatherproof bulbs stop failures caused by climatic conditions. Full details on Amplex street lighting lamp, available for every purpose, may be obtained from the Amplex Corp., Dept. K-6, 111 Water St., Brooklyn 1, N. Y.

Rugged New Battery For Emergencies

510 A nickel cadmium battery built to withstand the shocks of civil defense and peace-time emergencies is offered for such uses as keeping traffic controllers operating, floodlights lit, and for starting diesel engines. For a new catalog with prices, write Nife, Incorporated, 165 Broadway, New York 6, N. Y.

(Please Turn to Page 23 for More Literature)

Water Analysis Kit

511 The Hellige swimming pool Twin-Kit is used for accurate pH and chlorine or bromine determinations. This small tester is equipped with the Hellige glass color standards that never fade or change and carry a lifetime guarantee. Write for Folder No. 800-F describing this product, addressing Hellige, Inc., 3718 Northern Blvd., Long Island City 1, N. Y.

Supercharged Diesel Saves Fuel and Space

512 A fuel and space saver is the claim of The Cooper-Bessemer Corp., Mount Vernon, Ohio, and Grove City, Pa., in announcing its new modern supercharged JS-8 diesel engine. It is rated at 1,158 bhp at 450 rpm driving and 820 kw generator. The JS also is noted for exceptional efficiency. If your plans call for diesel, gas-diesel, or gas engine power, 60 to 3,700 hp, contact the firm for full details.

Versatile Crane

513 The Hydrocrane is available in two sizes: ¼-yard 2-ton, and ⅝-yard 3-ton. It travels at truck speeds, sets up in minutes, and has simple hand lever controls. Manufactured by the Bucyrus-Erie Hydrocrane Division, South Milwaukee, Wis., this machine is employed by park departments for transplanting trees; building maintenance departments, for redecking piers and capping piling, and by street lighting departments for setting lamp posts.

Flexible Pipe Joints

514 The basic principle of Dresser couplings assures superior pipe joints. Dresser Style 38 steel couplings are economical, reliable and employed on natural gas, manufactured gas, water, oil, gasoline, sewage, chemical, air, steam, vacuum and other pipelines. The coupling consists of one cylindrical steel middle ring, two steel follower rings, two resilient gaskets of special Dresser compound, and a set of high strength steel track-head bolts. For a copy of a new catalog, write to Dresser Mfg. Div., Dresser Industries, Bradford, Pa.

Save Steel Structures With This Paint

515 Use a paint that is guaranteed to "kill" rust on steel, is the advice of the Ebony Paint Mfg. Co., 18th St. and Agnes Ave., Kansas City 1, Mo. Literature distributed by this company lists endorsement of the paint by prominent consulting engineers, utilities and industries, tells its qualities that make it superior for protective purposes, and gives its guarantee against cracking, blistering, peeling, and rust prevention.

Impact Insurance Against

1—LOSS OF FIRE PROTECTION.

2—EXCAVATION AND PAVEMENT REPLACEMENT.

3—COSTLY REPAIRS INVOLVING MAJOR HYDRANT COMPONENTS.

4—FLOODING.

The Smith Protectop Hydrant is designed to permit rapid return to service at minimum cost when a Hydrant is damaged as a result of a traffic accident.

The Protectop Hydrant Standpipe and Valve Stem are equipped with *Special Couplings* located just above the ground. The Couplings withstand operating pressures and ordinary impact with an ample factor of safety. Under excessive impact occasioned by traffic accidents the Couplings fracture at the design points thus minimizing the damage and permitting speedy return to service at low cost.

All Smith Hydrants are equipped with *Compression Type Valves* which definitely eliminate flooding since the line pressure holds the Valve against its seat in the closed position.

Write for details.

35

FIRE HYDRANTS · VALVES · SINCE 1896

THE A.P. SMITH MFG. CO.

EAST ORANGE, NEW JERSEY

Which Catalogs Interest You?

Write directly to the manufacturers, or use the coupon on page 21

66 Modern Fire Stations

516 Designs of 66 modern fire stations have been assembled in an illustrated brochure available free to municipal officials. The types are suitable for fire departments and municipalities of any size. They range from Oakland, Calif., to Portland, Me., to Durham, N. C., and Houston, Texas. The booklet is called *Fire Station Design*. Ask also for a copy of a new *Hose Drying Manual*. Address the Circul-Air Corp., 577 E. Milwaukee Ave., Detroit 2, Mich.

Tandem Roller Makes Smooth Streets

517 The Buffalo-Springfield Roller Co., Dept. A-5, Springfield, Ohio, reports that a leading state highway department proved that the Buffalo-Springfield 3-axle tandem produces surfaces 50% smoother than the average obtained with conventional tandems of equal capacity. The 3-axle tandem averaged 60% more tonnage compacted than other units on the project. On request, the company will send a copy of its Catalog S-56-49.

Microfilmed Records

518 Every business record can be safeguarded with Burroughs microfilming. It is an easy, quick, and inexpensive method of protecting vital records against destruction. For further information, write to the Burroughs Adding Machine Co., Detroit 32, Mich., asking for a copy of the booklet, *Safeguarding Vital Records*.

Air Raid Siren Has Two Tones

519 The B & M Siren Mfg. Co., 765 E. Pico Blvd., Los Angeles 21, Calif., manufactures a 7½-hp siren that has two tones giving a special signal. It is especially designed for air raid use. After the success of an air siren test held in Alhambra, Calif., which employs this product, state civil defense leaders termed the municipality's system currently the best in the state.

Crawler Tractor

520 The Model GT-25 Terratrac crawler tractor is powered by a 4-cylinder Continental Red Seal Industrial gasoline which provides over 20 drawbar hp and 25 belt hp. The pull in first gear exceeds 3,000 pounds. Among its features are positive crawler tractor for all-weather operation, a high clearance of over 20 inches, and a hydraulic system for operating a wide range of attachments. For further information, write to the American Tractor Corp., Churubusco, Ind.

Better Metering and Controls For Water and Sewage Works

521 Equipment for water and sewage works is produced by Builders-Providence, Inc., 358 Harris Ave., Providence 1, R. I. The products are employed for metering and controlling flow of liquids, air, dry materials and for chlorinating water and sewage. Write for descriptive bulletins.

Parking Meters

522 Free bulletins on Dual automatic parking meters for on-street as well as off-street parking will be sent by The Dual Parking Meter Co., a subsidiary of The Union Metal Mfg. Co., Canton 2, Ohio. These meters provide positive timing, and their automatic operation eliminates bothering with levers. They are low in maintenance and simple to service. The firm will also supply information on its helpful survey service.

Simplified Water Meters

523 Simplified water meters are manufactured by the Buffalo Meter Co., 2902 Main St., Buffalo 14, N. Y. They have fewer parts and more simple castings. The meters are noted for quality and accuracy and the initial cost is moderate, because of the simple over-all design.

Protective Coatings Control Corrosion

524 Pitt Chem protective coatings control corrosion—industry's greatest waster. The range and proved efficiency of the Pitt Chem protective coating line—which includes hot and cold applied tar base coatings and alkyd, vinyl, chlorinated rubber and phenolic base coatings—can be created to a large degree, to the firm's position as a basic producer of coal chemicals and related products. For a copy of catalog describing its products, write to Pittsburgh Coke & Chemical Co., Grant Bldg., Pittsburgh 19, Pa.

Versatile Ambulance

525 The Chrysler ambulance is noted for its versatility, economy, long life, utility, and dependability. It is used for civilian defense projects, by state police, county sheriffs, municipalities, industrial first aid units, hospitals, and funeral directors. For full details describing this equipment, write to Chrysler Division, Chrysler Corp., 12200 E. Jefferson Ave., Detroit, Mich.

Water-Cooled Diesel Engines

526 Aboe, Inc., 350 Fifth Ave., New York 1, N. Y., on request will send literature on its power equipment. Petter water-cooled, 4-stroke cycle diesel engines are available for pumps, hoists, conveyors, cranes, crushers, and generators. Several models are obtainable, among which are B2T, B3T and B4T of 2, 3, and 4 cylinders, and B2 which has a 12-22.5-hp maximum. The firm will also send literature on Petter machine diesel engines for boats.

Safety Signs

527 Repair crews operate under safer conditions when using safety signs made by Eastern Metal of Elmira, Inc., Elmira Heights, N. Y. These signs are furnished in heavy-gauge steel with flexible baked-enamel finish for greater resistance to weather, vandalism, stone bruises, and other wearing elements. A pamphlet on these durable economical metal signs, that promote safety and help prevent accidents, will be sent by the company.

For Detecting Pipe Leaks

528 Fisher M-Scope instruments help solve leak detecting and pipe locating problems. They are manufactured by Fisher Research Laboratory, Inc., Palo Alto, Calif. Available are the Midget type leak detector, the standard model, and the pipe and cable finder in two models, for heavy duty and light weight. For small communities, the firm recommends a Midget combination leak-detector and pipe finder.

Protective Pipe Enamel

529 The Koppers Co., Inc., manufactures Bitumastic 70-B enamel which protects interior and exterior surfaces of pipe. This solution prevents rust, corrosion and tuberculation. The spun lining of durable enamel keeps flow-capacity high, reducing pumping costs. It also prevents pitting and leakage caused by soil corrosion. For further information, write to the firm's Tar Products Division, Dept. 422T, Pittsburgh 19, Pa.

Water Tanks

530 *Tank Talk*, the latest Cole catalog, will be sent on request by the R. D. Cole Mfg. Co., Newnan, Ga. The firm designs, builds, and erects tanks to suit the individual requirements of industries and municipalities.

Power Lawn Mowers

531 The Moto-Mower Co., of Detroit, Mich., has prepared new literature describing its power lawn mowers. Available are the Super-Detroit, Standard and City Models, the Commander Triplex, and trimmer-type. Write for your copies.

Protection for Public Records

532 Municipalities in search of protection for public records may find the answer in the new Diebold fire-insulated file-storage-room doors and vault doors. The 1-hr. and ½-hr. Diebold file-storage-room doors feature non-grout erection which saves time and money. The fire-insulated vault doors, non-grout, or grout, are easy to install, cut costs and have greater tolerances. Both are manufactured by Diebold, Inc., Canton 2, Ohio, which also produces the Vaultette, Class C, one-hour safe of welded steel which has a tongue and groove construction of door and frame that baffles the penetration of heat or flame and keeps contents safe inside the cabinet.

Uniform Fabrics

533 Standard uniform fabrics are manufactured by Metcalf Bros. & Co., 35 E. 17th St., New York, N. Y. The firm issues 12 to 18-ounce whipcord for breeches, and 20 to 30-ounce beavers.

Paint Protects Against Glass Splinters

534 Paint for Survival is the new, transparent, protective coating for glass. It minimizes danger of flying fragments, helps prevent glass splinters, is shatter resistant, and easy and inexpensive to apply. The Atomic Shelter Institute, 10 Park Ave., New York 17, N. Y., will prepare an estimate of coats for glass protection.

For Reservoir Linings

535 Gunite concrete is employed for new and old reservoir linings, concrete and masonry repairs, steel encasement, fireproofing, steel coal bunker, stack, hopper, and plant lining, as well as for lining and repairing sewers. The Gunite Concrete and Construction Co., 1301 Woodswether Road, Kansas City 6, Mo., specializes in cement gun work. For further information, write for catalog.

For Controlling Outdoor Lights

536 A bulletin just received describes 15-ampere relay for switching incandescent lamp loads. This relay is an item of a complete line of relays and oil switches for the remote control of street lighting, airport lighting, and floodlighting. For the 15-ampere relay sheet and for other information on remote control of outdoor lighting circuits, write South Bend Controller Co., P. O. Box R-P 2036, South Bend, Ind.

Bleachers—Safe and Durable

537 The Leavitt Bleacher Co., Urbana, Ill., will supply literature showing that its bleachers provide ample strength and safety. They store compactly, are durable and easy to assemble. The company's Knockdown wood bleachers have metal connectors that do not bend or lose shape in handling or storage, assuring easy and fool-proof erection. The firm also manufactures gymnasium telescoping bleachers for indoor use, portable steel grandstands, and permanent steel stadiums. Write for descriptive folder.

(See Page 25 for more Bulletins)

MI-CO PARKING METERS

•OUT-WORK
•OUT-LIVE
•OUT-EARN
many other types!

The record of MI-CO Parking Meters speaks for itself. We do not ask you to buy on unsubstantiated claims, or alone on the results of laboratory tests. We submit records of on-the-street performance over many years—under all conditions—from Alaska to Florida. It is upon these records we base our claim that MI-CO Parking Meters *out-work, out-live* and *out-earn* many other types.

MI-CO construction is unusually rugged, with moving elements reduced to a minimum. In some models there are only six moving parts. Contrast this with the delicate, intricate mechanism in other meters, and you get a pretty good idea why MI-CO maintenance is so low it's scarcely a consideration—why this meter has such a long and highly productive life, and why it is possible to easily and quickly service a MI-CO Meter should it need attention. What's more, the adjustment may usually be made in a few minutes right at the meter location.

Motorists like MI-CO's because they are thoroughly dependable. They know they will get all the time they pay for—no short changing—no fouled up mechanism or run down springs. MI-CO Parking Meters deliver full time, every time.

When you buy parking meters, buy on complete records. Ask especially to see five- to ten-year service records. These will show how well the meters hold up. We'll be glad to submit facts and figures on MI-CO's outstanding performance in hundreds of installations.

MI-CO METERS, 231 Court St., Covington, Ky.
Division of The Michosis Art Bronze Co., Inc.

Obtain this Literature Free of Charge!

Write directly to the manufacturers, or use the coupon on page 21

Rubbish Collection Costs Cut

538 Dempster Brothers, 851 Dempster Bldg., Knoxville 17, Tenn., reports that its Dempster-Dumpster waste collection equipment helped the City of Cincinnati to make big cuts in the cost of rubbish collection. The man-hours required for big tonnage collection was cut 60% and bulk trash and rubbish collection costs and work time decreased from 2.43 man-hours to .98 man-hours per ton of material delivered to incinerator. Full details on its product will be furnished by the company.

Mist Sprayers For Pest Control

539 Farquhar Iron Age mist sprayers for pest control are used on golf courses, parks, playgrounds, swimming pools, tourist courts, and picnic grounds. Model 125 has a 22-hp, 4-cylinder Wisconsin engine which drives the sturdy cast aluminum axial flow fan at 87% efficiency, delivering 6,000 to 11,000 cubic feet of air per minute at 90 to 125 mph. Further information will be sent by A. B. Farquhar Co., 3536 Duke St., York, Pa.

Sprayers for Parks And Golf Courses

540 The power and efficiency of the Century all-purpose sprayer, makes it particularly useful for weed and insect control work in parks, golf courses, and on roadside areas. Write to the Century Engrg. Co., Cedar Rapids, Iowa, for a free catalog describing the equipment.

Automatic Creeping Lawn Sprinkler

541 The Lawn Master takes the drudgery out of sprinkling lawns. It is an automatic creeping sprinkler with push-button controls that are simple to operate. The device creeps over lawn grass 30 to 65 feet per hour, depending on water pressure, and provides a rainlike sprinkle over an 8-to-50-foot circle. The 2-arm model is priced at $27.95, and 4-arm model at $29.95. Charges are slightly higher west of the Rockies. Full details will be sent by the manufacturer, the Masterbilt Products

These Trucks Speed Garbage Collections

542 Heil Colecto-Pak speed garbage collections, cut costs, foil flies and reduce lifting strain. Features of these refuse collection trucks include a totally enclosed steel body, packer plate which compresses 24-cubic yards of wrapped garbage in a 12-cubic-yard body. Full details on this machine, available in 9- and 12-cubic-yard capacities, will be sent by The Heil Co., Dept. 4341, 3043 W. Montana St., Milwaukee 1, Wis. When writing, ask for Bulletin BH 47109.

Improve Your Water Filters

543 Anthrafilt has a growing record for making water filters work better. Among its advantages over sand and quartz media are: only half as much wash water required; length of filter runs doubled, and less coating, caking or balling with mud, lime, iron or manganese. Additional information may be obtained from Anthracite Equipment Co., Anthracite Institute Bldg., Wilkes-Barre, Pa.

Sidewalk Resurfacer

544 A new bulletin descriptive of its Victory Resurfacer for sidewalks is announced by The Monroe Co., Inc., Cleveland 6, Ohio. The Monroe method for repairing, resurfacing, and effectively maintaining sidewalks utilizes a scientifically compounded unit material which contains bond, graded aggregate including silica oxide, bituminous paste, and setting powder. The resurfacer is not affected by heat or cold, drives in 24 to 36 hours, and can be applied without interrupting traffic, chipping or removing the old sidewalk.

For Civil Defense, Radiation Detection

545 Detectron geiger counters are used for civil defense and radiation detection. The low-priced Detectron DC-2 geiger counter covers an expansive range of industrial applications from prospecting to civil defense. Model 505 pipe detectors locate, trace, and center pipes and cables with speed and accuracy. Model 303 is a compact, well-balanced instrument for detecting valves, covers, lost tools, and any other buried metal object. Descriptive literature will be supplied by The Detectron Co., Dept. S-R, 5631 Cahuenga Blvd., North Hollywood, Calif.

The Right Answer To Your Pumping Needs

546 Whether your pumping problems concern flows that are a trickle or a torrent; whether you give the water a slight, low-head boost or must lift it against tremendously high heads; whether you must place pumping equipment in neat residential areas or in pits subject to risky flooding, the DeLaval engineers are ready with the right answer. When writing for information and literature, address your request to DeLaval Steam Turbine Co., Trenton 2, N. J., and describe your pumping problem.

Pipe Economy

547 Clow cast iron pipe is centrifugally cast in sizes from 3 to 24 inches, in 18-inch lengths, and for working water pressures to 250 pounds. It can be easily cut in the field, if needed. Cast iron pipe resists corrosion and gives a long life of service. A copy of its book, *Pipe Economy*, will be sent by James B. Clow & Sons, 201-299 N. Talman Ave., Chicago 80, Ill.

Automatic Heat Controls

548 Automatic controls of temperature in municipal buildings and also of boiler feed-water and other power-producing equipment is described in Catalog 700 issued by the Mercoid Corp., 4203 Belmont Ave., Chicago 41, Ill. The publication describes controls for domestic heating applications; for various industrial applications, and magnetic and motorized valves. Mercoid automatic controls are equipped with sealed Mercoid mercury switches designed to give operating results not obtainable with open contacts. These switches are not affected by dust, dirt, or corrosion.

Photogrammetry Aids City Planners

549 City officials confronted with problems of industrial expansion and growth of urban populations may find the solution by consulting Aero Service Corp., 236 E. Courtland St., Philadelphia 20, Pa. Among its services are topographic and planimetric maps, precise aerial mosaics, airborne magnetometer surveys, relief models, and color photography. Write for full details.

Automatic Emergency Lights

550 Big Beam emergency lights will give instant, automatic light whenever failure occurs in your regular lighting service, or in case of panic, disaster, or air raids. Two 6-inch floodlights operate on a 9-volt standard dry battery, giving a powerful light over a wide area. The equipment plugs into any conveniently located 115-volt lighting outlet, a.c. or d.c. For complete details on this and other models, write to U-C Lite Mfg. Co., 1063 W. Hubbard St., Chicago 22, Ill.

Steel Street Forms

551 One set of Blaw-Knox steel street forms handles every curb and gutter or sidewalk job, from simple work to curved or serpentine shapes. Interchangeable, they can be used many times in combinations to fit a wide variety of jobs. Bulletin 2259 on its product is available from Blaw-Knox Division of Blaw-Knox Co., 2099 Farmers Bank Bldg., Pittsburgh 22, Pa.

Single Radio Unit for Police

552 Four features of Kaar equipment have been combined into a single mobile radiotelephone package. The Radiopak features ruggedness, simplicity of design, lowest battery drain, and exceptional voice quality plus greater than ever stability and sensitivity, and engineered selectivity that exceeds standards set by FCC regulation. Its power output is 10-12 watts and frequency range, 152-174 mc. It is employed for police, taxi, fire equipment and trucking installations. For literature, write Kaar Engrg. Co., Palo Alto, Calif.

Air Raid Equipment

553 Equal intensity in all directions without rotation of horn is a feature of Signalphones manufactured by the Keystone Signalphone Co., 53 Marion St., Pittsburgh 19, Pa. It produces 133 decibels at 100 feet and operates on ordinary air compressors. This device, adopted during World War II by the National Office of Civilian Defense requires only 15-50-pound pressures and consumes only 23 cubic feet free air per minute.

Fire Engine's Pump Never Fails

554 American-LaFrance fire engines have a pump-priming system that never fails and doesn't require continued maintenance. The primer operation is independent of main pump. The system is simple, has no shifting gears, lubrication, or clutch. For further information, write to American-La France-Foamite Corp., Elmira, N. Y., or LaFrance Fire Engine and Foamite, Ltd., Toronto 9, Ontario, Canada.

Convertible Cots For Emergency Disasters

555 The Collapsi-Cot, manufactured by TEC Industries, Inc. (formerly Emergency Aids Co.), can be used to convert panel delivery trucks into emergency ambulances, police cars into auxiliary ambulance vehicles, or can be employed where less maneuverable stretchers fail. Prepare your city for emergency disasters by employing the Collapsi-Cot. For full details, write to the company at 2018 W. North Ave., Chicago 47, Ill.

This Drill Pulls Itself Into Earth

556 The KA-MO drill pulls itself into the earth and drills vertical, horizontal, or slanting holes at any angle. It bores through tough soils and frost, and drills holes hundreds of feet long for conduits and pipelines, from 2-inch diameter up to 36-inch diameter. This equipment can be mounted on a tripod operated by an electric motor or power takeoff from a truck. The manufacturer, KA-MO Tools, Inc., 1845 S. 55th Ave., Cicero, Ill., will send complete information on request.

Tree Trimming Equipment

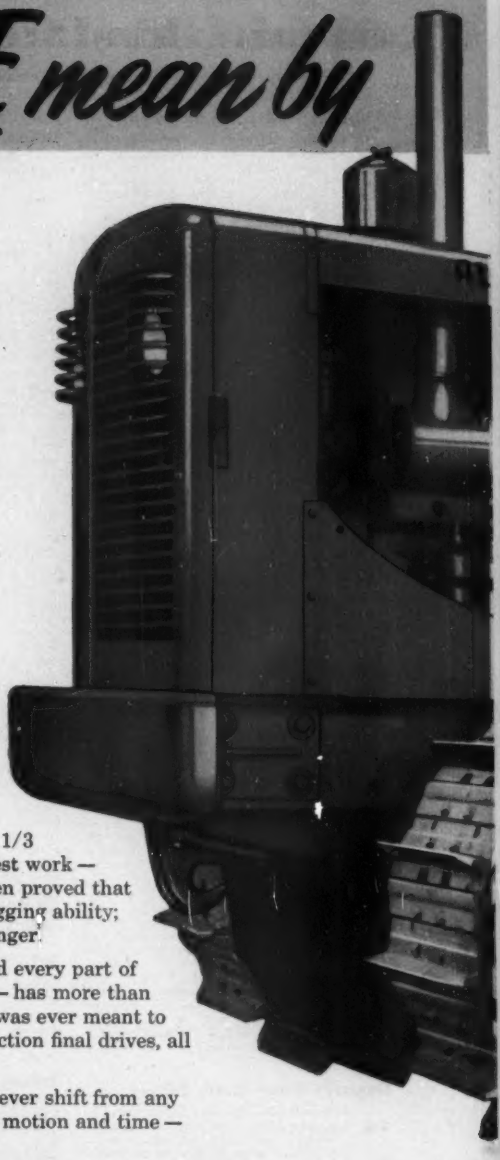
557 The Bartlett Mfg. Co., 3005 E. Grand Blvd, Detroit 2, Mich., on request will send a copy of its new Catalog No. 32, describing its tree trimming equipment and metal-cutting shears. Bartlett wood poles used on tree trimmers are hand-selected Sitka spruce, and the springs of the pulley type trimmer are of high quality Swedish spring steel. Wherever practicable, the trimmer has drop-forged parts, noted for their worth in additional cost in terms of efficiency, service, and durability.

This Self-Loader Has Elbow Action

558 The new Holmes-Owen loader with elbow action saves time, labor, and the use of more costly equipment by permitting the truck driver to do his own light digging, grading, loading, and cleaning-up. The equipment converts the usual dump truck into an independent working unit capable of performing a wide variety of work. The dump truck handles stock pile materials, removes debris, trash, and snow, cleans streets, intersections and parkways. Full details will be sent by Ernest Holmes Co., Chattanooga, Tenn.

(Please Turn to Page 28 for More Literature)

Here's what WE mean by



The new Allis-Chalmers tractors are not merely new models incorporating refinements of existing ideas . . . they are *new from the ground up* . . . without compromise anywhere in design or material.

They are the answer to your demands for tractors that will give you outstanding performance on a variety of applications—whatever those jobs may be.

Behind the design are your own ideas . . . and those of your operators and mechanics...combined with the vast experience of Allis-Chalmers.

Check the following outstanding features . . . then get the full story from your Allis-Chalmers dealer on this—"THE FINEST TRACTOR LINE ON EARTH."

POWER TO SPARE—A large untapped reserve (up to 1/3 of peak available hp.) assures easier going on toughest work—longer engine life, less servicing. Morever, it has been proved that General Motors 2-Cycle Diesels are unmatched in lugging ability; they build up torque faster and higher . . . hold it longer.

MATCHED POWER TRAIN ASSEMBLIES—Each and every part of the power train—from master clutch to final drive—has more than enough capacity and strength to handle any load it was ever meant to carry. Bigger clutches, booster steering, double-reduction final drives, all add life—get more work done.

REVOLUTIONARY SHIFT PATTERN—A quick, one-lever shift from any forward speed to any reverse position saves shifting motion and time—smoother and easier, too.

POSITIVE BALANCE—Tractors work equally well with any equipment—drawn or mounted. There's *greater stability* and *traction* with more track on the ground and lower structural weight. Main and truck frames are heavier, truck frames longer . . . idlers are bigger, and both idlers and sprockets lowered . . . all steel construction throughout. Up to 50 percent more ground clearance!

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

DESIGNED FOR YOUR JOB

HD-5 | HD-9 | HD-15 | HD-20

40.26 drawbar hp.
11,250 lb.

70 drawbar hp.
18,800 lb.

102 drawbar hp.
27,850 lb.

Hydraulic Torque Converter Drive
175 net engine hp.
41,000 lb.

The Newest, Finest Tractor Line on Earth!

• DESIGNED FOR YOUR JOB • BUILT TO TAKE IT • EASY TO OPERATE • EASY TO SERVICE

MODEL 1000-M
Super Heavy Duty with forward and reverse drive, 100% visibility.

CUTS Your SWEEPING COSTS 75%

MODEL 800 America's favorite Heavy Duty Sweeper with finger-tip dual control. (Sulky optional.)

Are costs getting the best of you? Is manpower a problem? Forget it—get a WILSHIRE Power Sweeper—the one-man gang that picks up everything from cigarette butts to pop bottles in one easy operation—does it so efficiently that users from coast to coast report reductions in cleanup costs of 75% and more. Make us prove it—with a FREE demonstration on your job. Write today for full information.

FACTORY TESTED...90-DAY GUARANTEE

For dealer nearest you write Dept. C-6

Wilshire
POWER SWEEPER CO
526 W. Chevy Chase Drive
Glendale 4, Calif.

Other Catalogs

Write directly to the manufacturers, or use coupon on page 21

Filter Sand And Gravel

559 Filter sand and gravel produced by the Northern Gravel Co., P. O. Box 307, Muscatine, Iowa, is taken from an inland pit which is free from river contamination and foreign matter. It is shipped in bulk or bagged. Many of the larger filter plants throughout the country use this product. Write for further information.

Water Conditioning Unit

560 The Permutit precipitator removes impurities from water by precipitation, adsorption, settling, and upward filtration. Its sludge blanket is kept fresh and active at all times. The water conditioning unit requires less space, time, and chemicals than previous designs of reaction and settling tanks, according to The Permutit Co., Dept. AC-4, 330 W. 42nd St., New York, N. Y.

Food-Waste Disposal For Municipalities

561 The *Hotpoint Municipal Plan of Food-Waste Disposal* employing the Hotpoint Disposall provides your community with a modern, sanitary, economical method of disposing of food-waste before it becomes garbage. This convenient new, and modern food-waste removal system protects the health of the families, reduces fly and rat pests, and costs of garbage collection, and eliminates the problems of garbage odor. This disposer is easy to install in any sink and does not overload or clog sewer systems. For all details, write to Hotpoint Disposall Dept., 5600 W. Taylor St., Chicago 44, Ill.

100-Hour Safety Lantern

562 The No. 40R Traffic-Gard, is a 100-hour lantern lighted 100 hours and more on 18 ounces of kerosene. It features lighthouse type lens, which magnifies the flame into a far-reaching safety beam. The device is cooler burning and minimizes lens replacement. Full details on lanterns and torches will be furnished by Embury Mfg. Co., Warsaw, N. Y.

Mechanically-Stoked Refuse Incinerator

563 You get more thorough burning. You get nuisance-free operation. And you lower the labor cost when you use the self-stoked Nichols Monohearth, according to the Nichols Engrg. & Research Corp., 70 Pine St., New York 5, N. Y. Write for free booklet telling of its many successful installations.

Precision Water Meters

564 The right size and right type of Badger precision water meters are available for every water meter service, according to Badger Meter Mfg. Co., Milwaukee 10, Wis. There are ⅝-inch to 1¼-inch home-service meters; 2-inch to 12-inch turbine (current) meters; 2- to 10-inch compound meters, and industrial meters.

Gas Engines For Portable Power

565 Single-cylinder gasoline engines for small tractors and portable pumps and other equipment, are manufactured by Briggs & Stratton Corp., Milwaukee 1, Wis. The company also produces locks, keys and related equipment in the automotive field.

Water and Sewage Equipment

566 The Right Answer Service, Refinite Corp., P. O. Box 1312, Omaha, Nebr., is prepared to help municipal officials with their problems of water treatment. The firm has prepared a booklet, *Contact Aeration Sewage Plants*, which discusses contact aeration principle and typical installations among other subjects.

(See page 30 for more Bulletins)

This Steel-Service Team for Municipal Requirements

Convenient to cities and towns from coast to coast, thirteen Ryerson steel-service plants stand ready to supply municipal steel needs.

True, shortages resulting from the twin pressures of defense requirements and unprecedented civilian demand may make it impossible for us to furnish every item on every order, much as we would like to. But it is likely that many of your requirements are among the carbon, alloy and stainless steels we have on hand for prompt shipment. And experienced Ryerson steel men are always glad to work with you—help you make the most of available steel.

From switchboard to shipping floor all of us are ready to give you prompt service whenever humanly possible. So call us when you need steel.

PRINCIPAL PRODUCTS

CARBON STEEL BARS — Hot rolled and cold finished
STRUCTURALS—Channels, angles, beams, etc.
PLATES—Many types including Inland 4-Way Safety Plate
SHEETS—Hot and cold rolled, many types and coatings
TUBING — Seamless and welded, mechanical and boiler tubes
ALLOYS—Hot rolled, cold finished, heat treated
STAINLESS — Allegheny bars, plates, sheets, tubes, etc.
REINFORCING—Bars and accessories, spirals, wire mesh
BABBITT—Glyco bearing metal, also Ryertex plastic bearings
MACHINERY & TOOLS — For metal fabrication

RYERSON STEEL

JOSEPH T. RYERSON & SONS, INC. PLANTS AT: NEW YORK • BOSTON • PHILADELPHIA • CINCINNATI • CLEVELAND
DETROIT • PITTSBURGH • BUFFALO • CHICAGO • MILWAUKEE • ST. LOUIS • LOS ANGELES • SAN FRANCISCO

NOW 1 machine does the work of 3

New Bantam® Back Hoe with Crane Adaptor and Backfill Blade

- Eliminates need for extra work crews!
- Saves bringing in costly 1-purpose rigs!

Digs
100' of 5' trench per hr.

New truck-mounted Bantam Back Hoe goes anywhere fast . . . opens trenches and other excavations to depths of 14 ft. Leaves trench bottom flat . . . sides straight, without need for hand trim. Three optional bucket widths — 20", 25" and 30" — with choice of solid or basket-type buckets for handling various materials.

Hoists
2½ ton loads

Simple Bantam Crane Adaptor quickly converts Bantam Hoe to 2½-ton crane (less outriggers or counterweights) in a few minutes on the job. Utilizes same boom, same stick — and same one-man operation — for economical spotting of gas, oil, water or sewer pipe. Also cuts cost of placing tanks, culverts . . . speeds loading and unloading materials from trucks without special equipment.

Backfills
100' of trench per hr.

With trench opened and pipe in place, operator simply hooks on fast-change Bantam backfill blade . . . covers trench in a jiffy . . . moves on to next job. Big 5' x 2' Bantam backfill blade has maximum reach of 23½' . . . works to within 6½' of center of machine rotation . . . remains perpendicular to ground at all times for fast "dozing" action.

Write for details

SCHIELD BANTAM COMPANY
234 Park St., Waverly, Ia., U.S.A.

SB C-13

SCHIELD BANTAM

Costs less . . . goes anywhere fast

GETS MORE JOBS DONE

More Literature

Write directly to the manufacturers, or use coupon on page 21

Catch Basin Cleaner

567 The Netco catch basin cleaner is easily mounted on any truck with 8 feet in back of the cab. It can be operated continuously, averaging 20 to 30 catch basins a day. Featuring pneumatic controls, the Netco is simple to operate and easily removes all sticks, stones, bottles and wire through openings as small as 16 inches. Complete information will be furnished by the Netco Division, Clark-Wilcox Co., 118 Western Ave., Boston 34, Mass.

Self-Propelled Curb And Gutter Paver

568 The Dotmar Speedmaster self-propelled curb and gutter paver has speed from 5 to 10 feet per minute. The Dotmar has an outrigger which can be extended 12 feet and 6 inches to 20 feet and 6 inches. Monolithic curb side of machine runs on form, street side is supported by wheel. The machine paves sidewalks up to 60 inches wide. Literature will be sent by Dotmar Industries, Inc., 511 Hanselman Bldg., Kalamazoo, Mich.

Centrifugal Pumps

569 Morris centrifugal pumps provide uninterrupted service at low operating and maintenance costs. Of modern design and rugged construction, they are employed by many water-works departments throughout the country. Full details are available from Morris Machine Works, Baldwinsville, N. Y.

No Sanitation Problems With These Drinking Fountains

570 The new Murdock outdoor drinking fountain eliminates the hazard to public health caused by the pollution of drinking water through plumbing back-siphonage. There is no cross connection between supply line and outside sources of pollution. The fountain is a product of The Murdock Mfg. & Supply Co., Cincinnati 2, Ohio, which will send information on its equipment, also including hydrants and street washers.

Filter Surface Washer

571 A circular describing its filter equipment will be sent by Palmer Filter Equipment Co., P. O. Box 1655, Erie, Pa. Among the advantages of the filter-bed agitator are that it requires an average of 40% less wash water, eliminates mud balls, prevents cracking and shrinking of the beds. Anthrafilt advantages are such as doubling the length of filter runs attainable with sand and quartz media and reducing coating, caking or balling with mud, lime, iron or manganese.

Flexible Trenchliner Has 12 Cutting Widths

572 The flexible 221 Trenchliner has 12 cutting widths from 16 to 36 inches with only 3 standard-size buckets, side cutters, and oversize teeth. Its telescopic ladder-type boom locks at 18-inch intervals for quick depth variations up to 8½ inches deep, and it has 30 digging feeds from 6½ inches to 13 feet and 10 inches per minute. Complete details will be supplied by the Parsons Co., Newton, Iowa, a subsidiary of the Koehring Co.

Flameproofed Canvas

573 Flamefoil Guardsman canvas is the standard flameproof fabric and is approved by Underwriters' Laboratories, Inc., and municipal and state authorities. According to the Philadelphia Textile Finishers, Inc., Norristown, Pa., the protection afforded by flameproofed canvas for awnings, tents, canopies and other equipment is recognized by leading fire prevention authorities. Write for bulletin describing the use of Flamefoil fabrics to reduce fire hazards.

(See page 32 for more Bulletins)

THIS IS THE 4th

For a Big Industrial Plant in Memphis

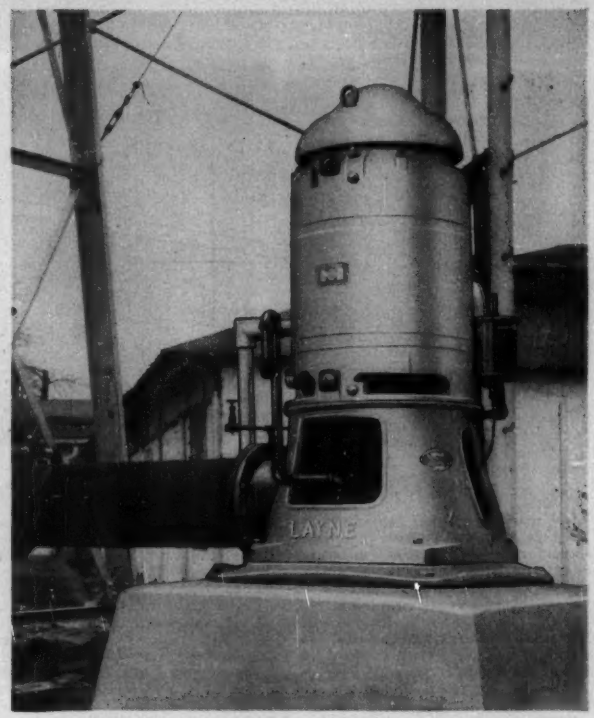
THE FIRST IN 1934 IS STILL PRODUCING ITS ORIGINAL CAPACITY

Seventeen years ago a big industrial plant of Memphis bought its first Layne well water supply system. World War II necessitated greater expansion which required two more Layne well supply units. Now the fourth has been completed and is producing 1790 GPM, whereas the contract guaranteed only 1500 GPM.

This is a typical case of where the first Layne installation proved to be so satisfactory that, as more water is needed, other Layne units are ordered as a matter of course. Certainly this industrial plant,—or any other big user of ground water, could make no finer investment.

Every Layne installation is a carefully engineered job from the original survey to the final testing. All have the same unmatched features of high efficiency, low upkeep cost and extra long life.

If you are considering the installation of a well water supply, a Layne engineer will be glad to make a study of your conditions. He will then recommend the type, size and overall capacity of a Layne unit—or units—that will best serve your water supply needs. There is no obligation.



4-TH LAYNE UNIT FOR AN INDUSTRIAL PLANT IN MEMPHIS

A New Catalog on SHORT COUPLED SERVICE PUMPS

Layne's new catalog on Short Coupled Service Pumps will be sent on request. It illustrates many varied and practical applications of these high efficiency pumps such as: pressure boosting, river intake, drainage, cooling, spray pond, fire, etc. Requests should be made on company letterheads.

Built Complete By Layne

The installation shown above—and all Layne well water supply units—are planned and installed complete by Layne's own field crews. All installations are under the constant supervision of Layne engineers which assures the owner of getting a tip top job from start to finish. Once installed, all Layne systems have the continued interest of Layne from whom any adjustment or repair can be obtained at any time.

LAYNE & BOWLER, INC., GENERAL OFFICES, MEMPHIS 8, TENN.

Layne
WATER SUPPLY
WELLS & PUMPS

. . . use CYCLONE FENCE!

ON many municipal projects absolute trespasser control is very important. Power plants and water reservoirs without adequate fencing not only leave valuable equipment at the mercy of vicious marauders . . . but also endanger the health and comfort of the entire city. Airports, too, must be securely fenced to keep patrons out of danger zones.

That's why you'll find more and more installations of Cyclone Fence on all sorts of municipal properties. Everywhere city engineers are finding out that adequate fencing is essential to every well-planned job . . . and they are discovering, too, that no other fence gives them better, longer-lasting protection than tough, sturdy Cyclone Fence. Cyclone is available in various heights and styles to meet the needs of every installation. Whatever your needs . . . you will be able to find a type of Cyclone Fence that is just right.

Get in touch with our experienced engineers for advice. And write for a free copy of our catalog giving complete details on all types of Cyclone Property Protection Fence.

NO JOB IS TOO LARGE
NO JOB IS TOO SMALL
FOR CYCLONE*

CYCLONE FENCE DIVISION
(American Steel & Wire Company)
WAUKEGAN, ILLINOIS · BRANCHES IN PRINCIPAL CITIES
UNITED STATES STEEL EXPORT COMPANY, NEW YORK

USS CYCLONE FENCE

*Cyclone is the trade-mark name of fence made only by Cyclone Fence Division. Accept no substitute.

—CLIP THIS COUPON— —SEND IT TO—

Cyclone Fence, Waukegan, Ill., Dept. B-61
Please mail me, without obligation, a copy of "Your Fence."

Name.....

Address.....

City.....State.....

I am interested in fencing:
☐ Industrial; ☐ School; ☐ Playground; ☐ Residence.

Approximately.....feet.

UNITED STATES STEEL

Catalogs for You

Write directly to the manufacturers, or use coupon on page 21

Wheel Loader Has Clutch-Type Transmission

574 No gear shifting on most loading jobs is required with the specially designed clutch-type transmission on the Model TL-10 TracoLoader manufactured by Tractomotive Corp., Deerfield, Ill. It provides a steady flow of power to drive wheels, loads in higher gear and has a single lever control. Its hydraulic torque converter drive assures smooth, continuous crowding action.

Pool Disinfectant

575 For an effective, safe swimming pool disinfectant, use bromine, manufactured by Halogen Supply Co., 4653 W. Lawrence Ave., Chicago 30, Ill. Bromine is a member of the Halogen family which includes chlorine, fluorine, and iodine. It has many times the bactericidal effectiveness of chlorine. For complete information, write to the company.

No Tools Required For These Tire Chains

576 No tools are required for Roll-A-Matic, extra heavy-duty tire chains; the links just snap on and turn automatically. The rolling action gives a snug fit between chain and tire, resulting in a smoother ride. With Roll-A-Matics you stock only 4 chain groups to cover 12 or more sizes. For full details, write to the Roll-O-Matic Chain Co., 200 Wyandotte St., Kansas City 6, Mo.

Chlorine Carrier For Emergency

577 Sanitation HTH is a 70% chlorine carrier, free-flowing, easy to use, handle, and store. It helps municipalities during a major emergency as well as for every-day jobs, such as sanitizing reservoirs, tanks, new mains, and filters. For full information on the many practical uses of HTH, write for your copy of *Hypo-Chlorination of Water* from the Mathieson Chemical Corp., Mathieson Bldg., Baltimore 3, Md.

Water Works Brass Goods

578 McDonald water works brass is used by five thousand to five million population towns and cities throughout the country, according to the manufacturer, A. Y. McDonald Mfg. Co., Dubuque, Iowa. The E-4701 corporation stop has various type adaptors and 3-part copper coupling. Write for illustrated brochure with detailed specifications.

Primer Serves Additional Pumps

579 In addition to keeping centrifugal pumps always primed, an automatic vacuum primer will serve additional pumps without having to provide additional priming equipment. Merely connect the new pump to the vacuum storage tank. Multiple-pump installations are handled as simply as single pumps. For complete details of these automatic pump primers, including uses, dimensions, sizes, and installa-diagram, write for "Information on Apco pump primers as described in the Municipal Index for 1951." Address Valve and Primer Corp., 356 W. Huron St., Chicago 10, Ill.

Catch Basin Cleaner Vacuums the Dirt Out

580 One can empty catch basins, clean cesspools and flush streets with the 900-gallon Karrier cleaner. It operates by vacuum, presses the contents, and expels the excess water back into the basin. For details, write Rootes Motors, Inc., 27-11 Bridge Plaza North, Long Island City 1, N. Y.

REPEAT ORDERS

"I'm how right
MILLERS were in the
beginning and how
right they've stayed
the years."

LLOYD H. MARKEL, Mayor
Aurora, Illinois

It's easy to see why Aurora (and hundreds of other medium size cities) pick MILLER meters. City officials look at the record . . . and see where scores of cities (some with original MILLER installations dating back almost 15 years) continue ordering more MILLERS as expanded use of more meters becomes necessary. For example, St. Petersburg, Fla. beginning with 470 in 1941 has 1775 today . . . Hagerstown, Md. installed 140 way back in 1937 and has since purchased 565 . . . Eugene, Ore. starting with 145 in 1939 now has close to 1000 on the job. Salt Lake City's original installation in 1939 of 1100 has grown until now 2900 are in service. And so it goes, over and over again, repeat orders prompted by low maintenance, continuous on-the-job performance, top earnings, and public acceptance. And the MILLER for '51 is an even better meter than its predecessors. Write today for all its advantages.

635 NO. WOOD STREET **DUNCAN PARKING METER CORP.** CHICAGO 22, ILL.

HUBER

A DEPENDABLE NAME IN . . .

ROAD MACHINERY

Dependability in road machinery is the result of many factors—such as sound design, use of the right materials and careful workmanship. The experience and general policy of the manufacturer are also important influences.

Since 1863, HUBER has had one policy —to build machinery that will do a sound job in the field. Not to meet a price nor outsell a competitor, but to do a job for the man who buys it.

The HUBER Maintainer has won wide acceptance as a 6,000 lb., 42½ H. P. Grader with attachments that permit year-round use in a variety of maintenance jobs. HUBER's complete line of rollers is known and used throughout the world. HUBER Motor Graders are doing important jobs—and doing them well.

For dependable road machinery, see your nearest HUBER Distributor.

HUBER MANUFACTURING COMPANY
MARION, OHIO, U. S. A. — Since 1863

HUBER

MANUFACTURERS OF HUBER MAINTAINERS, GRADERS AND COMPLETE LINE OF ROLLERS

An Important Message for Everyone Who Buys Sewage Treatment Equipment

From Single Items To Complete Sewage Treatment Plants INFILCO Equipment Can Fill ALL Your Needs

Thinking about replacing old equipment or modernizing and increasing the capacity of a sewage treating plant? INFILCO can provide a complete range of equipment and control devices from which to choose.

Planning an entirely new plant? INFILCO offers you the advantage of a *one-source* supply for *all* your needs. Whether your plans call for chemical or biological treatment, you can depend upon INFILCO for the most modern equipment available.. equipment that will be modern *for years to come!*

A complete laboratory and staff of competent engineers are available for making recommendations and reports.

When considering your next sewage treatment plant or the modernization of an existing plant—consider the advantages of Infilco Service and Equipment. The Infilco Field Engineer is only a telephone call away. Consult your Classified Directory or write our executive offices in Tucson.

SEND FOR *8-page Bulletin No. 60-C. It contains illustrated descriptions covering the many superior advantages of Infilco Sewage Treatment Equipment.*

PRECISION ENGINEERED INFILCO SEWAGE TREATMENT EQUIPMENT

Accelator®
Accelo-Biox®
Accelo® Filter
Accelo Hi-Cap® Filter Underdrain
Aero-spray Nozzles
Aero-Accelator
Automatic Dosing Siphons
Chemical Feeders
Clarifiers & Automatic Skimmers
Coagulators
Combination Grease & Grit Remover
Cyclator®
Digesters
Griductor®
Daytona Beach Process Plant
Mixing Basin Equipment
Rotary Distributors
Sewage Samplers
Vortex Grit Removers
Verti-Floc®
Verti-Mix®
Verti-Mix Aerators

SERVING MUNICIPALITIES WITH SEWAGE TREATMENT EQUIPMENT THAT'S

Quality Engineered for Quality Performance

INFILCO
BETTER WATER CONDITIONING AND WASTE TREATMENT SINCE 1894

INFILCO INC.

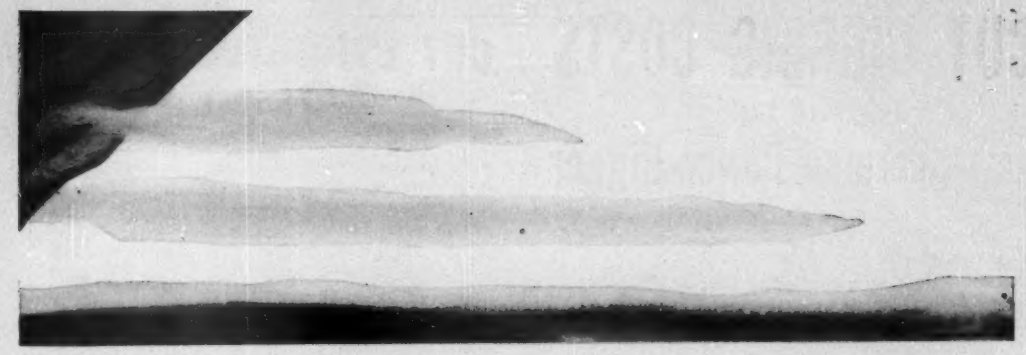
NEW YORK 17 • TUCSON • CHICAGO 16

SALES OFFICES IN TWENTY SIX PRINCIPAL CITIES

WORLD'S LEADING MANUFACTURERS OF WATER CONDITIONING AND WASTE TREATING EQUIPMENT

JOHNS-MANVILLE PRODUCTS

Johns-Manville



tax savings for the future

Three billion, two hundred and fifty million dollars*—that's what it will take to foot the bill for new water system construction so urgently needed by the American people during the next ten years!

For the thousands of communities that must carry a share of this additional investment, the vital need for water system expansion is most unwelcome at this time in the face of constantly rising costs.

This means that, wherever possible, water works officials will be called upon to keep an exceptionally close watch on expenditures . . . to see that the money laid out for new systems brings the greatest possible return to the taxpayer.

Since a sizable part of the cost of any water system involves the supply and distribution lines, an important question to be answered by these officials will be: "Which pipe will give the greatest return from this portion of our investment?"

Thousands of communities have already found the answer to this question in Transite Pressure Pipe.

A threefold warranty of economy is built into every length of Transite Pressure Pipe . . . the modern pipe developed by Johns-Manville through research and engineering to carry water more efficiently:

1. ***Long service life*** . . . because Transite Pipe is made of three inherently corrosion-resistant materials—asbestos, cement and silica—and is steam cured under pressure by a special Johns-Manville process which assures *maintained strength in service*. Carefully kept records of performance in highly corrosive soils prove that conditions which seriously weaken other pipe materials have little effect on Transite.

2. ***Low operating costs*** . . . because Transite Pipe has a smooth interior surface which provides a high water-carrying capacity (C=140). Moreover, because Transite cannot tuberculate, this high carrying capacity *remains* high through the years. Pumping costs, as a result, stay low. Delivery of a full volume of water at lowest operating cost is assured.

3. ***Maximum water economies*** . . . because Transite Pipe has tight, yet flexible joints that *stay* tight in service. These joints absorb vibration and soil stresses, cut down on costly underground water leakage. This is especially important today when water supplies in many localities must be conserved to the limit to meet constantly increasing water consumption.

In addition to these assurances of tax savings for the future, Transite Pressure Pipe offers many *immediate* economies, such as important savings in time and money during installation . . . further sound reasons why it will pay you and your community to specify Transite for the greatest return from your pipe investment.

*From THE WALL STREET JOURNAL, May 26, 1950

For complete information write Johns-Manville, Box 290, New York 16, N. Y.

TRANSITE PRESSURE PIPE

Transite is a registered Johns-Manville trade mark

CUT DIGGING COSTS

with the

new Sherman Power Digger

Patented, actuated bucket gives you selective digging action, better loading, greater versatility.

All-hydraulic action—made possible by heavy-duty hydraulic cylinders—assures efficient performance.

SPECIFICATIONS

Shovel reach below ground surface	8 feet
Digger reach behind tractor	10 feet
Swinging arc	140°
Trench width, standard digging shovel, single cut	18 inches
Digging shovel capacity	3.5 cu. feet
Loading shovel capacity	5 cu. feet
Loading clearance, digging shovel, loaded	7 feet
Loading clearance, loading shovel	10 feet

Standard tractor mounting gives unmatched maneuverability and transportability.

•

Digs ditches, trenches, footings, culverts, basements and other excavations.

•

Handles roots, rocks, hard clay and oiled road surfaces.

Works well behind the tractor at any angle.

•

Actuated bucket raises high enough to load standard dump truck.

WRITE FOR LITERATURE TODAY!

Designed, Engineered and Manufactured Jointly By
SHERMAN PRODUCTS, INC. • Royal Oak, Michigan
WAIN-ROY CORP. • Hubbardston, Massachusetts
Sold Exclusively By SHERMAN PRODUCTS, INC.

SHERMAN PRODUCTS, INC., Department No. 111 Royal Oak, Mich.

CUT ESTIMATING TIME with ROLATAPE

The NEW, QUICK Way to Measure Distances

- **Measures as it rolls**
- **One-hand operation**
- **Accurately calibrated**

ROLATAPE accurately measures and records as you wheel it over distances to be measured. Model 200 illustrated, records up to 100 feet, repeats cycle after ringing bell. Clearly audible click every two feet permits running count.

Measures wall to wall, vertical, overhead and curved surfaces easily and accurately. Rugged steel construction withstands hard field usage. Easy to carry, weighs only 2¾ lbs.

ROLATAPE pays for itself in a short time. Speeds up all kinds of estimating and layout work. No extra man needed to help with measurements. Order today to assure prompt delivery. Full satisfaction guaranteed, or money promptly refunded if returned within 10 days.

ROLATAPE handle extends 34", yet folds compactly. Wheel is 7⅝" in diameter. Other models available for longer distances, rough terrain.

Only $17.50

Order direct from:

ROLATAPE, INC.

1415 14th St. Dept. C Santa Monica, California

GAS STORAGE TANKS

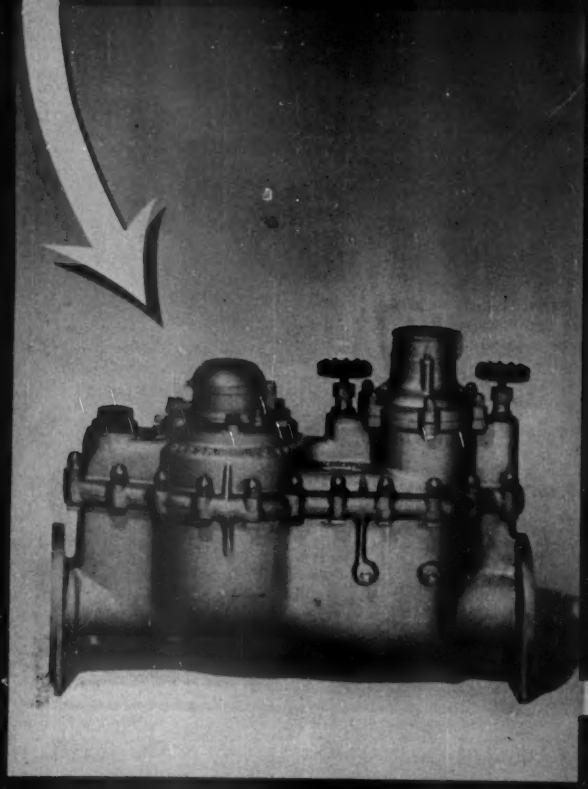
• Whether you want conventional high-pressure units or something *special*—send us your inquiries. COLE can build you the kind of high-pressure tanks or vessels you require—any size, any shape, any metal. Our experience (of almost a century) in the design and fabrication of metal tanks may be of help to you.

Send us your inquiries for tanks of all types. Write for free catalog— "Tank Talk"

R. D. COLE MFG. CO.

NEWNAN, GA Established 1854

This
COMPOUND WATER METER
made only by
HERSEY



This Water Meter measures accurately a widely varying range of flows with a comparatively low loss of head. Tested and approved by experienced water works engineers.

All bronze cases, 2 to 6 inches

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MANUFACTURING
COMPANY
SOUTH BOSTON, MASS.

BRANCH OFFICES
New York
Portland, Ore.
Philadelphia
Atlanta
Dallas
Chicago
San Francisco
Los Angeles

HERSEY

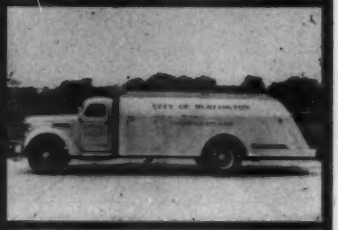
ETNYRES keep streets clean all over the country!

In every state in the Union Etnyre "Sanitary" Street Flushers are used to keep streets thoroughly cleaned, reduce bacterial count and disease hazard, cool pavements, lay dust.

High pressure streams of water clean streets up to 42 feet wide in *one* trip — even under parked cars.

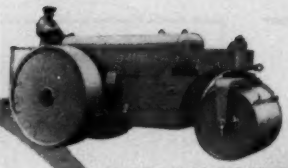
Etnyre Street Flushers are available in four basic styles with front or rear engine drives. Regularly equipped with 3 nozzles, 600 G.P.M. pump, 800 to 3000 gallon tank.

See your dealer or write direct.



E. D. ETNYRE & CO., Oregon, Illinois

5-10 Ton Model VM 3-Wheel



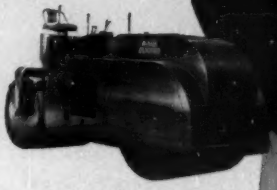
10-15 Ton Model VM 3-Wheel

IN ROLLERS...IT'S

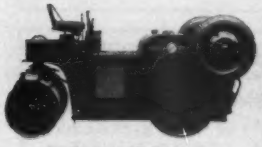
Buffalo-Springfield

STANDARD OF COMPARISON THE WORLD OVER

5-9 Ton Heavy Duty Tandem



8-14 Ton Heavy Duty Tandem



3-5 Ton Portable Tandem

Trench Roller

KX 3-Axle Tandem

There's an authorized Buffalo-Springfield distributor conveniently located to serve you

You own the *best* in roller equipment—for less per year than cheaper rollers—when you own Buffalo-Springfield.

That's because Buffalo-Springfields are built to *last longer*—cost less to operate and maintain. They're extra rugged, sturdy, dependable. Made in a variety of types and weights to meet every compaction need, by the world's largest exclusive manufacturer of road rollers.

Buffalo-Springfield service excels also. Buffalo-Springfield distributors in all 48 states and Canada feature modern facilities and complete stocks of genuine factory parts to keep your equipment rolling up profits.

Better see your Buffalo-Springfield distributor before you buy. Or, write the Buffalo-Springfield Roller Co., Springfield, Ohio, for full information.

BUFFALO SPRINGFIELD

THE STANDARD OF COMPARISON

SPRINGFIELD, OHIO

WORLD'S LARGEST EXCLUSIVE MANUFACTURER OF ROAD ROLLERS.

Mark-Rite
LINE MARKER

ECONO-LINER POWER SPRAY MODEL

MARK-RITE EQUIPMENT USED THROUGHOUT WORLD!

Purchasers of Mark-Rite Equipment Include:

Winslow, Arizona
San Diego, California
Miami Shores, Florida
Springfield, Illinois
Columbia City, Indiana
Monroe, Louisiana
Boston, Massachusetts
Springfield, Minnesota
Greenville, Mississippi
Bozeman, Montana
Las Vegas, Nevada
Cincinnati, Ohio
The Dalles, Oregon
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Fort Worth, Texas
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- Quickly paints sharp lines on: Concrete, black top, brick surfaces
- One man operation
- Paints up to ¼ inch alongside fixed objects
- Ideal for marking auto stalls and pedestrian cross walks.
- Can be used for spray stenciling on streets, painting curbs, fire hydrants, etc.

FOR DETAILED INFORMATION WRITE DEPT. A41

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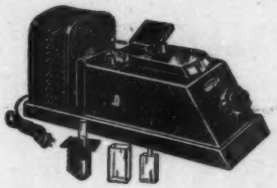
Adaptable for Use in Water Analysis



Can be used for any determination in which color or turbidity can be developed in proportion to substance to be determined.

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Light-Weight MODEL-AB

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ALL UNITS ENTIRELY AUTOMATIC

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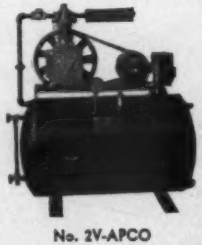

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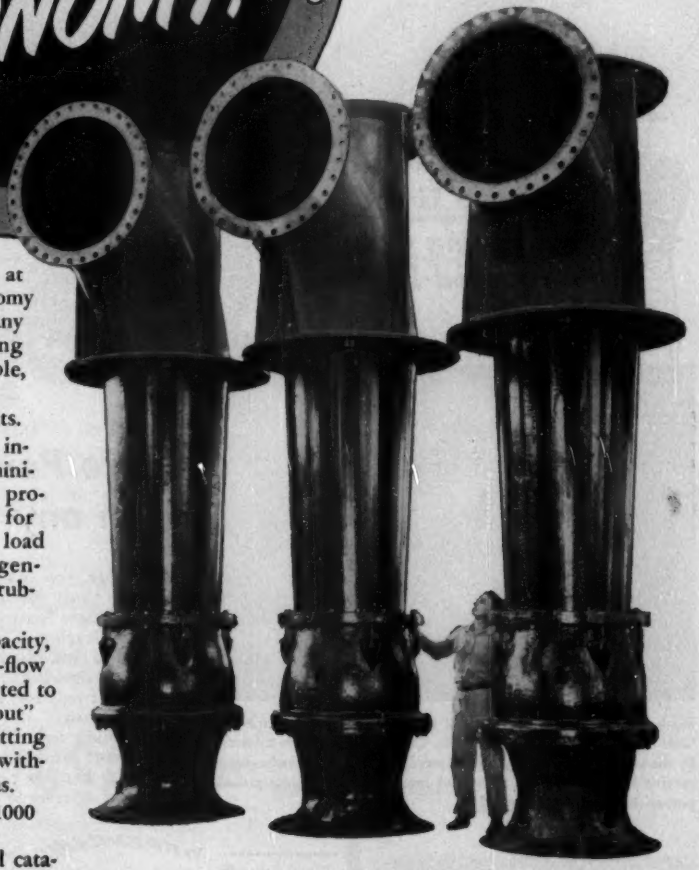
LOOK TO ECONOMY!



Economy mixed-flow pumps, each 28,000 G. P. M., 35-ft. TDH, 575 RPM, for condenser circulation in Georgia public utilities plant.

You can deliver more water, fresh, contaminated or sea, at lower over-all cost, with Economy mixed-flow pumps than with any other type efficient pumping equipment! Compact and simple, they are designed for large capacity, low head requirements.

Impellers, close to the pump inlet to keep submergence to a minimum, are carefully designed to produce the proper capacities, and for efficient operation during all load requirements. Bearings are generally of the water-lubricated rubber type.

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It's the NEW

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ONE MAN
Chain Saw

Pays for Itself in No Time Clearing Out Wooded Land

It's a one-man saw that does the work of other two-man saws. Cuts an 18 inch tree in 16 seconds. Cuts trees 48 inches or more in diameter. Has simple, safe controls; automatic clutch; automotive type carburetor; rainproof magneto and chrome-plated, perma-sharp, narrow kerf chain.

27 Pounds
4 Horsepower
More Power Per Pound than any other saw

Remember, you can't start any building or construction job until the location is properly cleared. And with this new Homelite One Man Chain Saw, you can do your clearing in less time . . . with less labor . . . and at less cost. It's the fastest cutting, easiest handling saw ever developed. And it's a rugged, dependable saw that needs less maintenance, fewer repairs, than any other saw.

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POSTMARKS OF PROGRESS!

Is your city joining the growing trend towards making whole communities garbage-free?

Clear across the country, more and more progressive-minded civic leaders are adopting the new, more hygienic method of garbage disposal —the General Electric way.

By municipally sponsoring the revolutionary G-E Disposall®—which eliminates garbage *electrically* by converting food waste into sewage—they are taking the lead in giving *entire communities* the benefits of this tremendous modern advance in sanitation.

In Jasper, Indiana, for instance, installation of G-E Disposalls is already complete in two-thirds of all homes. The city's garbage collection service has been suspended.

In Herrin, Illinois and Mount Dora, Florida, whole groups of fortunate housewives—thanks to municipal action—have joined the ranks of more than 250,000 G-E Disposall users. They now wash away *processed* food wastes—simply by turning the kitchen faucet.

If *you* are in any way concerned with civic planning or sewage treatment, now is the time to consider how the G-E Disposall, perfected by 15 years of pioneering and improvement, can bring new convenience and better health to your community.

Let us answer your questions and send you printed information—or even a personal consultant to discuss your special problems. Write General Electric Company, Dept. A6, Bridgeport 2, Connecticut.

G-E DISPOSALL

CONVERTS FOOD WASTE TO SEWAGE—ELIMINATES "GARBAGE"

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You can put your confidence in—

GENERAL ELECTRIC

MAKE EACH VOTE COUNT

with

AUTOMATIC VOTING MACHINES

With paper ballots, a voter may lose his vote by unknowingly:

1. Voting for more than the proper number of candidates.
2. Making erasure marks.
3. Using a pen instead of a pencil
4. Failing to keep cross mark (X) inside voting square.
5. Marking within the Party circle and then voting for candidates in another Party.
6. Making distinguishing marks which can be construed as identifying the ballot.

Over 5,000 Cities and Towns in 26 States from coast to coast have found that these errors are eliminated through the installation of AUTOMATIC VOTING MACHINES. This is just one of the many advantages of the "Mechanical Ballot". Officials, organizations and individuals interested in a more efficient and economical Election System are invited to write for information and literature.

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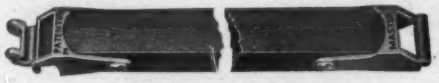
The REGULAR, a light rod,
Fir stock 1¼ x 1¼ inch square.

are joined together with a dual lock forming a rigid chain that will float. They can be coupled or uncoupled upon the street if desired. Made in two sizes.



The MASTER, a heavy duty rod,
Fir stock 1⅛ x 1⅛ inch square.

Write for catalog on complete line of sewer cleaning equipment.

EXPANDING SEWER MACHINE CO.
NAPPANEE, IND.

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CHOICE OF MANY PROGRESSIVE CITIES

•RUSTPROOF •DURABLE •ATTRACTIVE

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ILLUSTRATED
4 SIGNS — 4 WAY ASSEMBLY
WITH BLOCK HORIZONS

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LAKE SHORE PATTERN WORKS
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ALUMINUM IS *Scarce!*
TO INSURE DELIVERY OF SIGNS
PLACE ORDERS NOW!

✓ Check these facts...

ON DORR CLARIFIER MAINTENANCE COSTS!

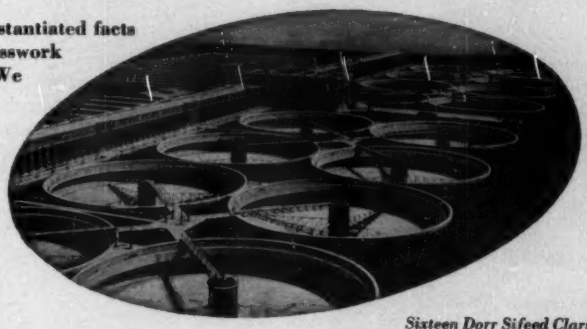
REPAIR COSTS ON DORR TYPE S (ROUND) CLARIFIERS

SIZE	100'-200' DIA.	UNDER 100' DIA.
PURCHASE PERIOD	1931-42	1932-35
YEARS IN SERVICE	4-15	11-14
NUMBER OF UNITS	115	95
TOTAL REPAIR COSTS	$3,568	$2,933
PER UNIT	$31	$31
TOTAL REPAIR COST FOR ENTIRE PERIOD AS % OF ORIGINAL COST	0.27	.77

A glance at the figures above will tell you exactly what repair costs can be expected with Dorr Clarifiers.

These figures are substantiated facts ... not estimates, guesswork or wishful thinking. We believe they cannot be matched.

Repair costs are one of the primary factors upon which Clarifier excellence should be judged. Are you getting the best?



Sixteen Dorr Sifeed Clarifiers at Easterly Treatment Plant, Cleveland, Ohio, installed in 1932.

We'd like to tell you how Dorr Clarifiers stack up on performance too. Ask a Dorr engineer for the facts.

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Throw a wet blanket

HIGH COSTS!

SEE THESE BENEFITS:

- Short Detention Time
- Lowest Chemical Requirements
- Absence of Settling
- Adaptability to Variable Rates of Flow
- Low Turbidity
- Lengthened Filter Runs

The Sludge Blanket in the Permutit Precipitator acts as a filter...SAVES YOUR EXPENSIVE CHEMICALS!

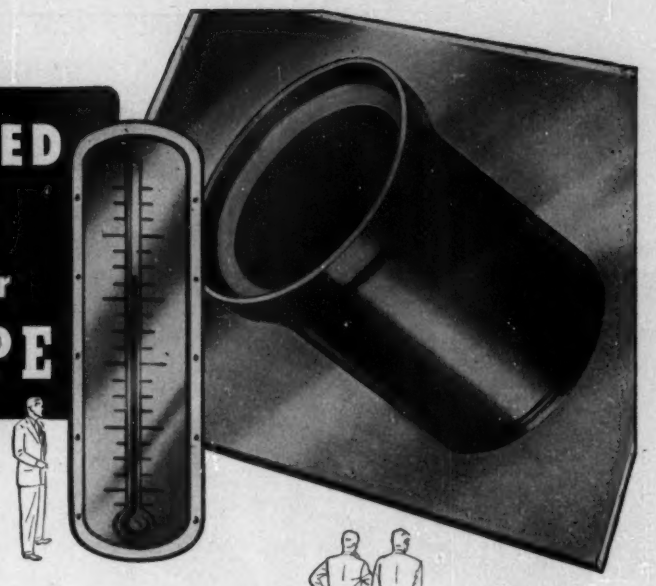
The positively agitated uniform sludge filter in the Permutit® Precipitator will save you up to 50% in space and 75% in time of treatment too!

The Permutit Precipitator offers you the newest and most efficient means of removing impurities from your water. It does this by precipitation, adsorption, settling, and upward filtration. Write for full details to the Permutit Company, Dept. AC-6, 330 West 42nd Street, New York 18, N. Y., or to the Permutit Company of Canada, Ltd., 6975 Jeanne Mance Street, Montreal.

FOR 38 YEARS
WATER CONDITIONING HEADQUARTERS

Permutit

CONTROLLED DRYING Makes Your CLAY PIPE



- **STRAIGHT**
- **ROUND**
- **SMOOTH**

Nature makes Clay Pipe acid-proof and everlasting. It can't corrode, crumble, or rust away. But science works closely with nature to make Clay Pipe the engineer's top choice for every sewerage and drainage job.

Controlled drying keeps Clay Pipe uniformly straight for easier installation, round and smooth for maximum velocity. Warm air is circulated in and around the Clay Pipe, drying it evenly. Thermostats control the temperature. End result: the best pipe for your sewerage and drainage jobs.

When you specify Vitrified Clay, you're selecting the best efforts of science and nature working hand in hand. Together, they produce for you the *only* pipe that *never wears out!*

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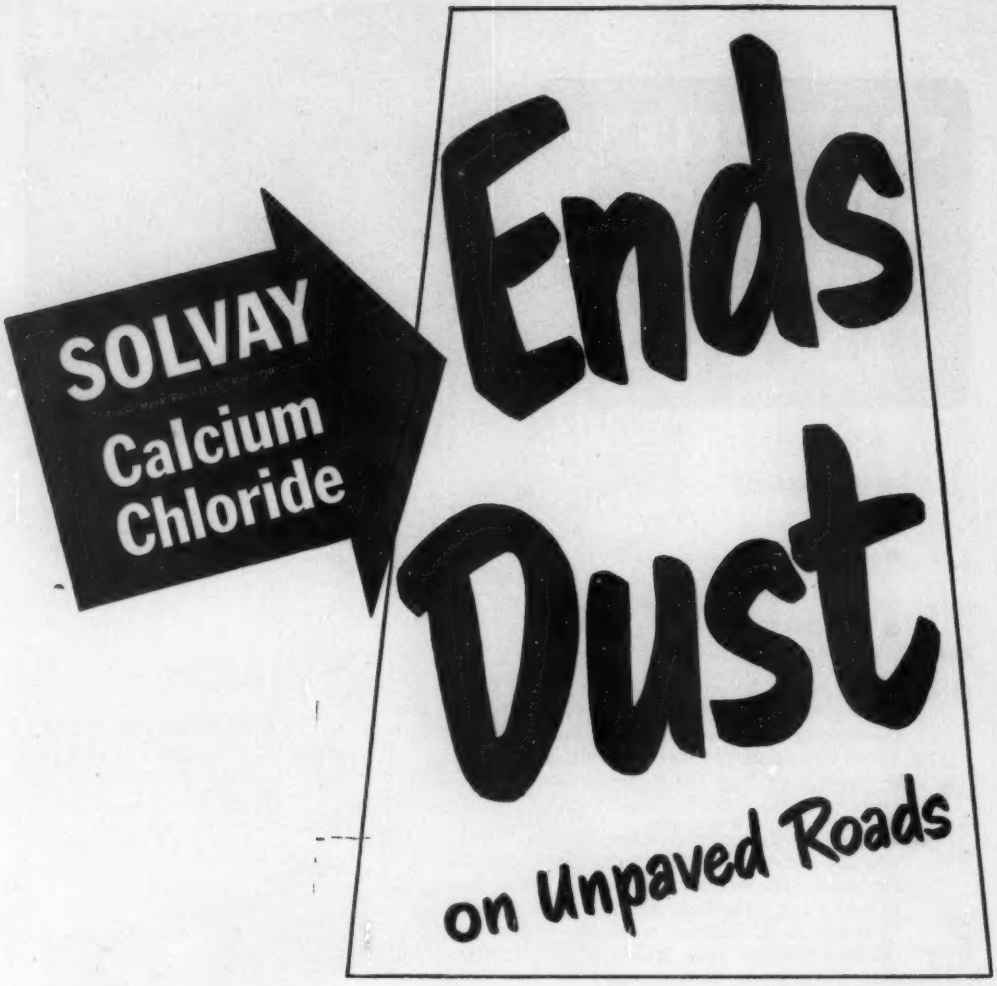
SPECIFY *Vitrified* **CLAY PIPE**

CLAY PIPE NEVER WEARS OUT!

WRITE FOR DETAILED INFORMATION

Additional information and data on Vitrified Clay Pipe, Wall Coping and Clay Flue Lining sent FREE on request. State your specific questions. Simply contact the regional office nearest you.

C-451-2



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Front Drivers PULL

Rear Drivers PUSH

We call it Controlled Traction, and it moves More Material, Farther and Faster.

True—you cannot actually see All-Wheel Drive in action on the average job; but it is "in there pitching" every minute . . . providing increased traction . . . moving more material . . . holding the front end steady.

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Yes—All-Wheel Drive and Steer *Go Together* on every job . . . *Work Together* as a team, for maximum performance, in minimum time, at lowest cost.

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BALDWIN BLH LIMA-HAMILTON

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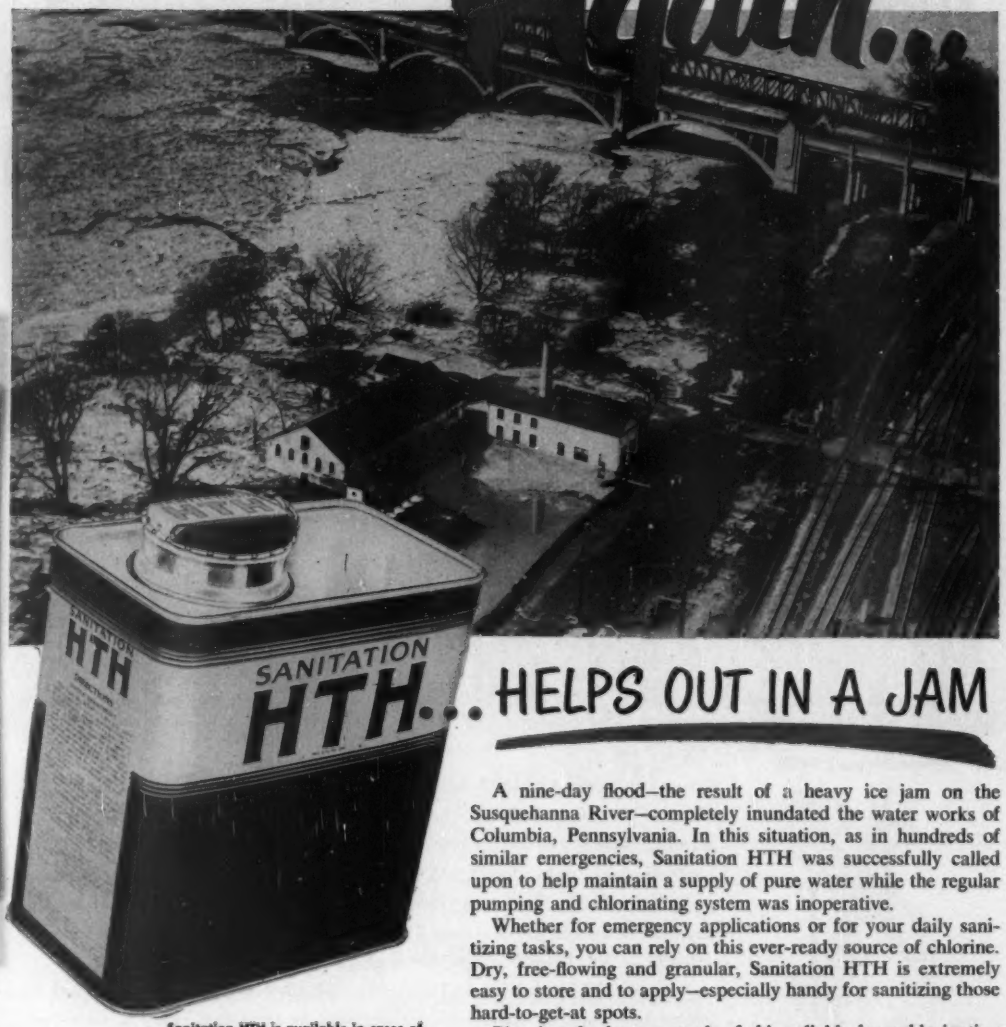

Sanitation HTH is available in cases of nine handy 5-lb. cans and in 100-lb. drums.

...HELPS OUT IN A JAM

A nine-day flood—the result of a heavy ice jam on the Susquehanna River—completely inundated the water works of Columbia, Pennsylvania. In this situation, as in hundreds of similar emergencies, Sanitation HTH was successfully called upon to help maintain a supply of pure water while the regular pumping and chlorinating system was inoperative.

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CHEMICALS

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One-Man

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Wonder at Wood River

CRUSHES AND COMPACTS REFUSE—the powerful Crawler-Bullclam compacts the refuse—crushing, smashing, ironing it out with the specially curved Bullclam front.

TRANSPORTS AND SPREADS EARTH COVER—Every night the big red International covers the day's compressed garbage with a layer of clean earth, carried and spread in place by the big Bullclam bucket.

GRADES AND LEVELS FINISHED AREA—When the trench is full, a final earth layer two feet deep is graded and finished—and what once was wasteland is ready for park, playground or other municipal facility.

One operator reclaims land with an International Crawler-Drott Bullclam unit—the only equipment specifically designed to do all 4 steps of the complete sanitary fill job.

At Wood River, Illinois, garbage is disposed of and 30 acres of low land are being prepared for a park at the same time—and the whole job is done by one machine.

An International Crawler with a Drott Bullclam digs out trenches for the trucks to fill.

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Finally the Bullclam covers the compacted mass with earth and grades the earth smooth, to raise land values at the same time it raises the land itself.

Wood River's job supervisor reports: "By far the best way to get rid of our waste—far easier and cheaper than I expected."

Ask your International Industrial Distributor about this one-man wonder! Or write for details to:

Drott Manufacturing Corporation
Milwaukee 8, Wisconsin

International Harvester Company
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POWER THAT PAYS

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You can help your community by making use of this service. Practical aid from electronics engineers is as near as your telephone. Call your G-E civil defense communications specialist today for details.

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"Specials" are a Specialty of LOCK JOINT...

Elbows, wyes, tees, crosses, outlets, manholes, reducers, bevels, adaptors... *any* special pipe you require is available in standard Lock Joint design. And if standard specials won't do the job, "special" specials may be designed to individual specifications. Lock Joint Concrete Pressure Pipe can be connected swiftly and efficiently to any standard water pipe of other material. All specials are engineered with the same care and high safety factor that have made Lock Joint the pipe of unexcelled durability and dependability.

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Est. 1905

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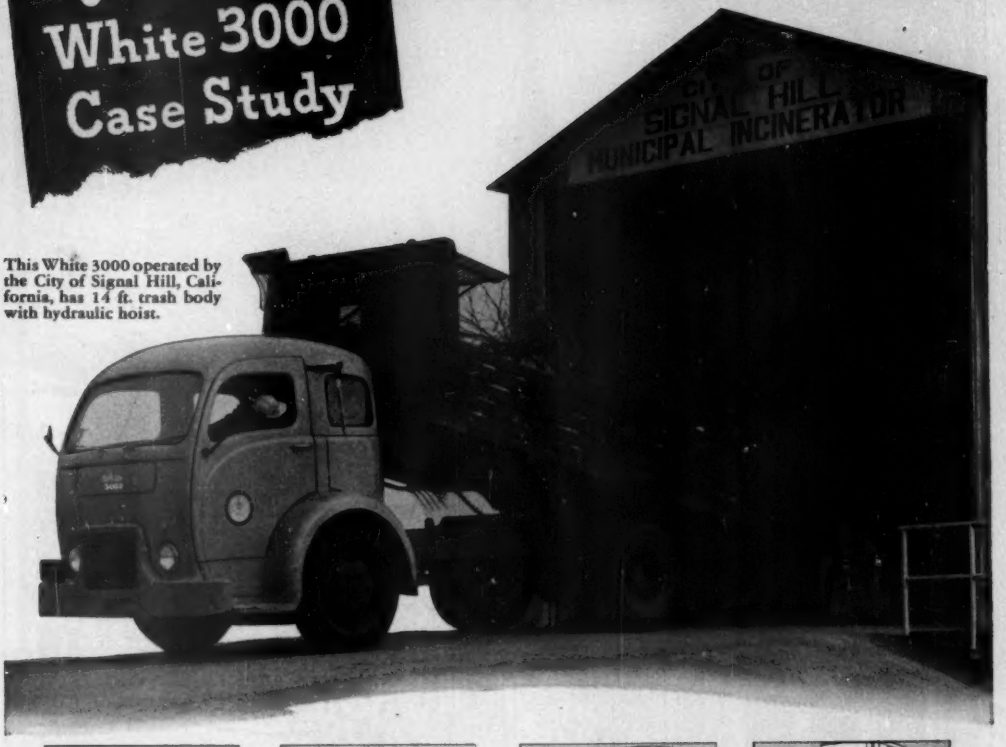
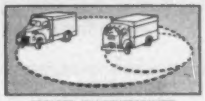
SCOPE OF SERVICES—Lock Joint Pipe Company specializes in the manufacture and installation of Reinforced Concrete Pressure Pipe for Water Supply and Distribution Mains in a wide range of diameters as well as Concrete Pipes of all types for Sanitary Sewers, Storm Drains, Culverts and Subaqueous Lines.

IDEAL FOR MUNICIPAL SERVICE

White 3000 Case Study

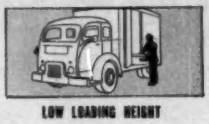


This White 3000 operated by the City of Signal Hill, California, has 14 ft. trash body with hydraulic hoist.


GREATER MANEUVERABILITY

NEW CAB SAVES DRIVER TIME

BETTER VISIBILITY . . . SAFETY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BASED ON OPERATING records made in municipal service in all parts of the nation, the White 3000 saves time . . . cuts operating costs . . . improves service.

Its outstanding maneuverability saves driving time and assures easier going in the tight places. Its extra carrying capacity means bigger loads . . . makes possible covering much more territory.

It saves loading time . . . saves time maneuvering to unload. Low level, roomy cab saves steps. All these savings cut substantially cost per ton handled, add to the safety and efficiency in city service departments.

Case study reports prove the time and cost-saving of this great, new White 3000 that is ideal for city service and collection.

Find out from your White Representative how it can be applied to good advantage in your operations.

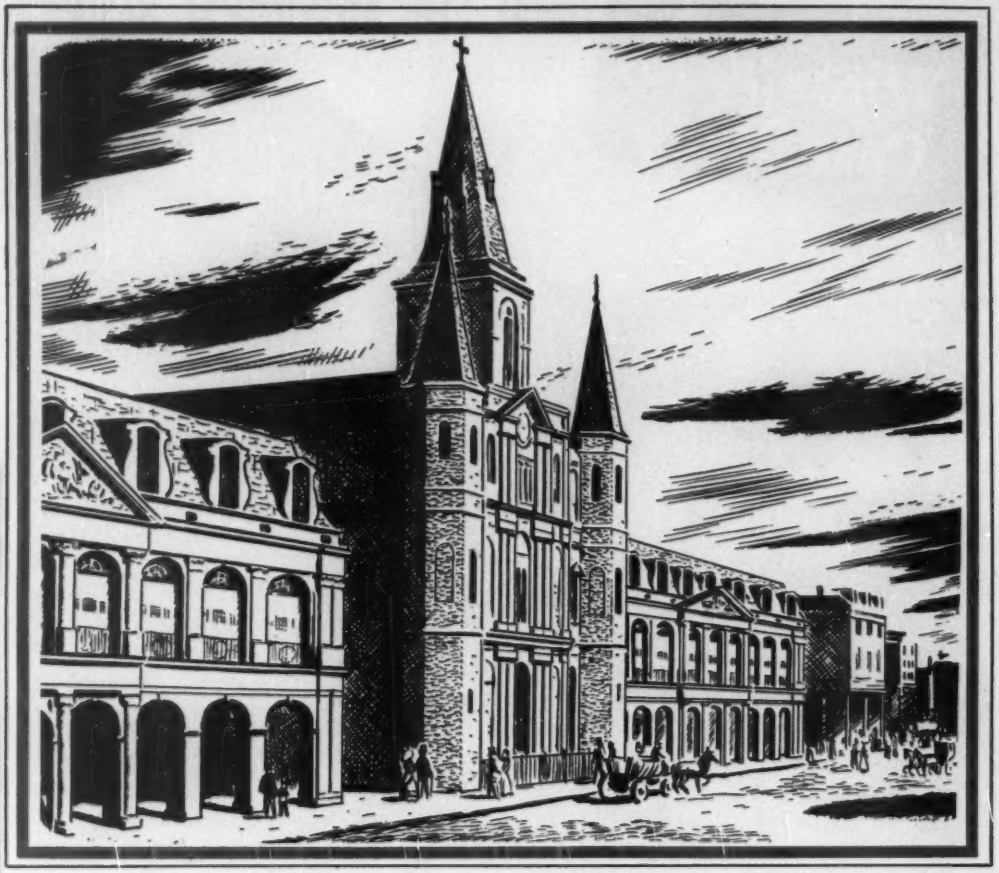
THE WHITE MOTOR COMPANY
Cleveland 1, Ohio

White EMERGENCY SERVICE CORPS

Keep your Whites in good working condition . . . for the duration!

Tips its cab to service

For more than 50 years the greatest name in trucks



New Orleans' famed Cabildo and Cathedral of St. Louis in the Vieux Carré as seen 100 years ago

New Orleans has a cast iron gas main in service that was installed well over 100 years ago. Vehicular traffic in those times was a far cry from today's giant buses and trailer trucks. The engineering term—*traffic shock*—was then unheard of. There were no sewers, conduits and other underground services to cause soil disturbance. Yet this old cast iron main has had the shock-strength, beam-strength and effective resistance to corrosion to withstand the changes and unforeseen stresses of more than a century. New Orleans' experience is not exceptional. Cast iron water and gas mains, laid over a century ago, are still serving in the streets of more than 30 cities in the United States and Canada.

United States Pipe and Foundry Co.,
General Offices, Burlington, N. J.
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NUMBER SIX OF A SERIES

MODERN HAZARDS demand modern apparatus

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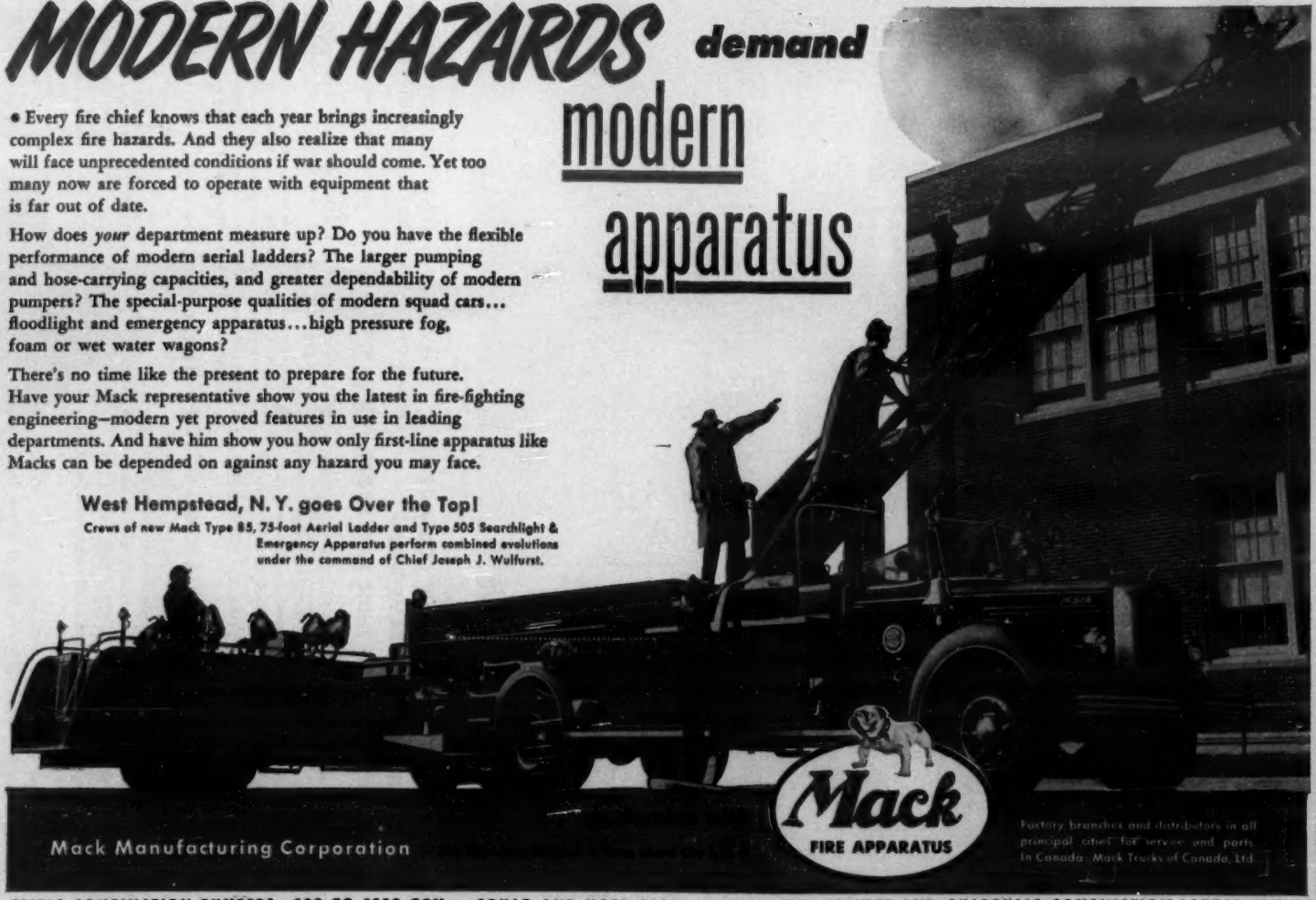
How does *your* department measure up? Do you have the flexible performance of modern aerial ladders? The larger pumping and hose-carrying capacities, and greater dependability of modern pumpers? The special-purpose qualities of modern squad cars... floodlight and emergency apparatus...high pressure fog, foam or wet water wagons?

There's no time like the present to prepare for the future. Have your Mack representative show you the latest in fire-fighting engineering—modern yet proved features in use in leading departments. And have him show you how only first-line apparatus like Macks can be depended on against any hazard you may face.

West Hempstead, N. Y. goes Over the Top!

Crews of new Mack Type 85, 75-foot Aerial Ladder and Type 505 Searchlight & Emergency Apparatus perform combined evolutions under the command of Chief Joseph J. Wulfurst.



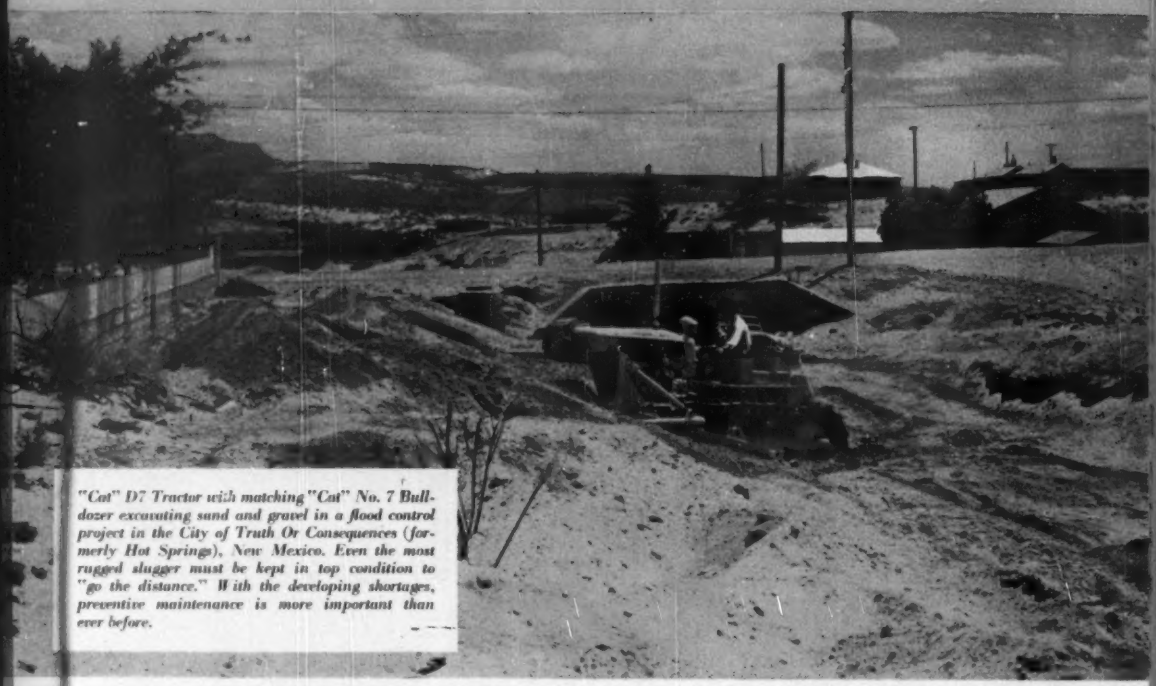
Mack Manufacturing Corporation

Mack FIRE APPARATUS

Factory branches and distributors in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

TRIPLE COMBINATION PUMPERS—500 TO 1500 GPM...SQUAD AND HOSE CARS...AERIAL, CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

There's a big



"Cat" D7 Tractor with matching "Cat" No. 7 Bulldozer excavating sand and gravel in a flood control project in the City of Truth Or Consequences (formerly Hot Springs), New Mexico. Even the most rugged slugger must be kept in top condition to "go the distance." With the developing shortages, preventive maintenance is more important than ever before.

IF YOU WANT TO HELP YOUR COUNTRY— AND YOURSELF AT THE SAME TIME— READ EVERY WORD ON THESE TWO PAGES

Keeping equipment *on the job* is of prime importance today—to the nation as well as municipal authorities. Last year construction costs for cities, counties and states totaled 2¼ billion dollars; and proper maintenance of municipal streets, parks and utilities will amount to a bigger job this year.

Right now there is a shortage of materials with which to build urgently needed machines and parts. Military and Defense Rated Orders get the nod over unclassified civilian needs. Steel and other materials are in short supply. This means that you—with our help—must get every last machine-power hour out of the equipment and parts you now have.

Down-time will not only weaken the defense effort, it can put the municipal authority himself in the hole. City-owned equipment has taken on new importance in the defense effort. Taxpayers are entitled to see that machines are kept on the job in these crucial times.

So to discharge the responsibilities of your job, and help America arm for defense, do these things now:

1. Use equipment properly. "Cat" machines are built for hard use—not abuse.
2. Give *extra* attention *now* to preventive maintenance (see next page).
3. Discuss your parts needs and maintenance problems with your "Caterpillar" dealer. His maintenance responsibility begins where your operators' and mechanics' responsibility ends. He has the skilled servicemen and equipment to rework and rebuild worn parts to keep your machines on the job longer.

CATERPILLAR TRACTOR CO. • PEORIA, ILLINOIS

The last war showed the Military that "Cat" Earthmoving Equipment was as important to defense and offense as tanks. Here Sgt. Robert Chrisman operates a "Cat" D7 Tractor with matching blade on Davison airstrip at Ft. Belvoir, Va.

job ahead!

You're the Doctor

Today no owner can afford to think of direct costs alone. Good care of equipment can mean the difference between a producing machine and one laid up for repairs. To see how good care can save many hours of equipment life, reread your Operator's Instruction Book often and follow these suggestions.

• DUST

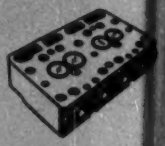
Think of dust as Machine Enemy No. 1. A few grains today—a few more tomorrow—and soon the result adds up to serious wear. Dust or dirt plugged breathers or air cleaners—use of dirty oil containers—loose intake manifolds—loose inspection covers—dirty clutch compartment—failure to wash flywheel clutch compartment—worn seals on crankshaft—defective gaskets—failure to clean oil filter openings . . . these are some of the vulnerable spots.

• TRACK ASSEMBLY

Don't let abusive use or neglect cripple the service life of your track assembly. Track adjustment and lubrication of rollers, carrier rollers and idlers are your job. Before excessive wear occurs on grousers, links, pins, bushings, idlers, rollers and sprockets, call in your "Caterpillar" dealer. He can build up grousers, rollers, idlers and links, and replace sprocket rims and turn pins and bushings so you will have many additional hours of service.

• CYLINDER HEADS

Prevent cracked cylinder heads by avoiding overheating, freezing, scale deposits, filling a hot engine with cold water, pulling heads down too tight, and other poor maintenance practices. Your "Caterpillar" dealer can repair most cracked cylinder heads. He can replace worn valve seats with valve inserts and restore the rocker arm mechanism to serviceable limits. Consult your Operator's Instruction Book for proper cooling system and valve care.



• COOLING

Don't let your engine overheat. Keep the cooling system free of scale, rust and sediment. Use soft or treated water, and when freezing temperatures exist, protect your engine with anti-freeze. Clean the radiator regularly with chemical flushing solutions. Remove foreign matter from the core by brushing or washing. Prevent engine troubles which come with overheating. Consult your Operator's Instruction Book for proper cooling system care.

• LUBRICATION

Careful lubrication practices will add much to your satisfaction through equipment performance, economy and long life. Use *only* recommended lubricants, changing the lubricant at proper intervals. And use *only* "Caterpillar"-proved filter elements. Remove dirt from fittings and clean around the crankcase filler cap before adding oil. A little care saves many hours of engine life. Consult the lubrication chart in your Operator's Instruction Book.

• PISTONS AND LINERS

Almost all the piston wear occurs in the upper ring groove. Your "Caterpillar" dealer can renew your pistons by machining the upper ring groove for a wide ring, many sizes of which are chrome plated. Worn liners can be deglazed and put back to work for many additional hours of service life. Consult your Operator's Instruction Book for information on lubrication and the oil cooling system.

CATERPILLAR

REG. U. S. PAT. OFF.

DIESEL ENGINES • TRACTORS • MOTOR GRADERS • EARTHMOVING EQUIPMENT

GOLDAK'S value plus!

THE Dualtronic COMBINATION PIPE LOCATOR and LEAK DETECTOR

Since first introduced, the "Dualtronic", has met with instant success with Municipalities and Utilities throughout the world, because of the time and labor savings effected by one instrument doing the work of two so efficiently and effectively. Ruggedly built! Lightweight! One man operation! The "Dualtronic", is the answer on how to cut costs 50%!

Proven Ability

GOLDAK

FEATHERWEIGHT

MODEL 87

PIPE LOCATOR

Guesswork eliminated. Pin-point location of pipes, mains, gates, tees, etc. One man operation, total weight 11 lbs! Strong, positive location signal guaranteed by Licensed circuits and Microtuning, exclusive with Goldak. Lasts a lifetime, guaranteed performance. Write for FREE literature!

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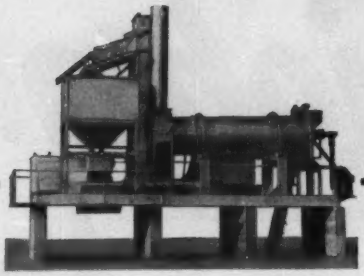
Glendale 1, California



White Asphalt Plants For Moderate Paving

Complete stationary hot plants, on 1 steel frame, easily moveable, at reasonable prices.
Excellent for medium size city paving. Successful for contractors on all street and highway maintenance; for driveways, sidewalks, industrial plants.
Supplied with oil fired rotary dryer, batch mixer, bitumen heater, vibrating screen, divided hot bin, dust collector, volumetric measure or weight scales; air controls; engine or electric power.
Sizes: L-12, 12-15 tons per hour. Will pave 25' street, 2" thick, one 300' block per day.
L-25, 25-30 tons per hour. Will cover 20' road, 1" thick, at ½-mile per day.

Also portable repair plants, 4 and 8 tons per hour.

Write for catalog and name of nearest dealer.

Elkhart White Mfg. Co. Indiana

ANTHRAFILT

(Reg. U. S. Pat. Off.)

A Filter Medium For All Purposes

Has outstanding advantages over sand and quartz media:

1. Length of filter runs doubled
2. Only about one-half as much wash water required
3. Less coating, caking or balling with mud, lime iron or manganese
4. Filters out of service less because of shorter wash cycle
5. Better removal of bacteria, micro-organic matter, taste and odor
6. Increased filter output with better quality effluent
7. Not just the top portion, but the entire bed, aids in filtering
8. Can be used in all types of filters using a filter medium
9. A perfect supporting medium for synthetic resins
10. An ideal filter medium for industrial acid and alkaline solutions
11. Decidedly advantageous for removal of fibrous material as found in swimming pool filters

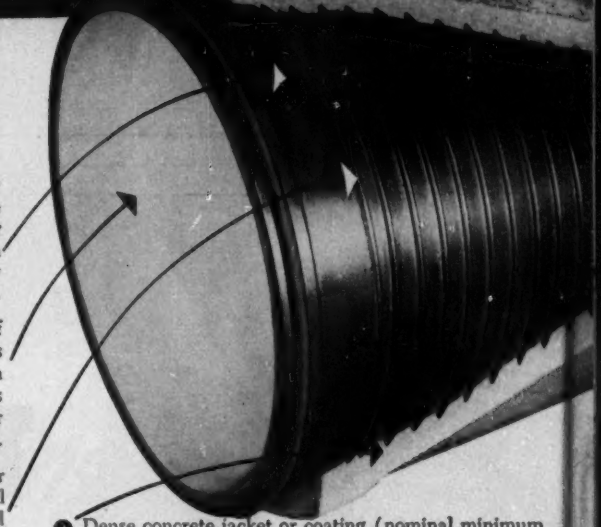
Additional information, recommendations and quotations furnished upon request by

PALMER FILTER EQUIPMENT COMPANY
822 E. 8th St. Erie, Pa.
Engineers and Sales Agents

REPRESENTING

ANTHRACITE EQUIPMENT CORP.
Anthracite Institute Bldg., Wilkes-Barre, Pa.

In AMERICAN CONCRETE CYLINDER PIPE these *four* advanced design features give you *greater strength* with *greatest economy* of steel components.



❶ Steel cylinder provides a positive water seal or membrane, as well as part of the required total steel area*. (Thickness of the cylinder varies according to pipe diameters and general design requirements). Each cylinder is hydrostatically tested to a unit stress of at least 22,000 psi.

❷ Centrifugally spun concrete lining is of proper mixture and dense compaction. Its thickness adds rigidity and strength through "arching" effect (nominal minimum lining thickness is ½" for 14" and 16" diameters and ⅝" for larger diameters). Cylinder is lined prior to rod wrapping.

❸ Steel reinforcing rods, which together with the steel cylinder provide the total required cross-sectional steel area*, are wrapped under measured tension and accurate spacing around the concrete lined cylinder. The section modulus is thus increased while the concrete lining is placed under slight initial compression. The result is, in effect, a modified prestressed design.

❹ Dense concrete jacket or coating (nominal minimum 1" thickness over the cylinder) is "locked" around the rod wrapping over the entire surface of the cylinder. This is an important structural feature.

*Total cross sectional steel area is based on 13,500 psi max. allowable unit stress at the design operating pressure.

When selecting pressure pipe for your permanent water transmission main, do not overlook the inherent strength of American Concrete Cylinder Pipe to meet all normal conditions of internal pressures and external loads.

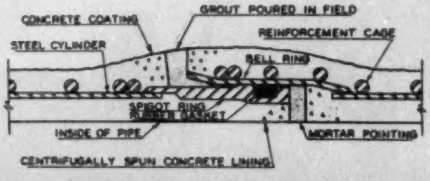
Economy of design, together with maximum sustained carrying capacity, ease of installation, and minimum of maintenance all contribute to the reduced cost of delivered water throughout generations of dependable service.

In practical tests for Underwriters' Laboratories, Inc., several sections of pipe were installed under 10' of earth cover and changes of inside diameter were measured by machinists' calipers at several points along each section. Average results were as follows –

	Vertical Diameters in inches	Horizontal Diameters in inches
42" Dia. Pipe	Minus .314	Plus .318
30" Dia. Pipe	Minus .052	Plus .050
21" Dia. Pipe	Minus .010	Plus .009

Subsequent examination of the concrete linings disclosed that they were sound and unimpaired under these extraordinary earth loads.

Throughout the West this superior pipe is demonstrating its advantages in actual operation. Complete information upon request.



American PIPE AND CONSTRUCTION CO.

Concrete Pipe for Main Water Supply Lines, Storm and Sanitary Sewers, Subaqueous Pipe Lines

P.O. Box 3428, Terminal Annex, Los Angeles 54, California
Main Offices and Plant—4635 Firestone Blvd., South Gate, Calif.

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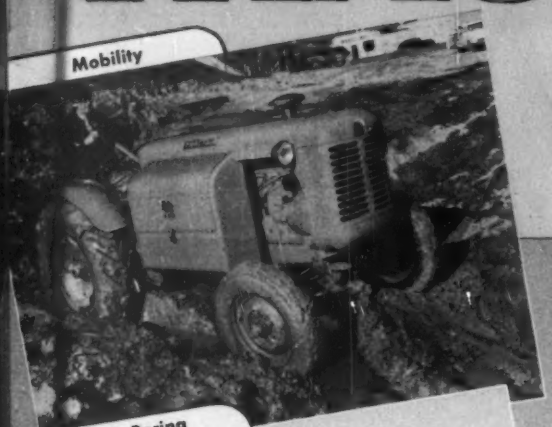
Le Roi gives you more for your MONEY!

more utility
more profits

TRACTAIRS

THE BUY-



Tractair Gets Around thanks to good weight distribution, excellent traction, and a powerful 35 hp. engine. You have economical air-power when you need it despite rough ground, mud, and steep inclines.

Secondary Drilling on a mountain highway relocation and grading job is made easy with Le Roi-CLEVELAND sinkers and self-propelled air-power from Tractair.

Drilling Anchor Holes with an auger air-powered by mobile Tractair saved a utility company $18,000.

Patching Pavement is done easily and quickly with a Le Roi-CLEVELAND Patcher designed to mount on the rear platform of a Tractair. This unit made exclusively by Le Roi-CLEVELAND, drills closely spaced holes within a 7-foot radius, then breaches the section of pavement loose for easy removal. On this job, the bricks were removed just to get to the pavement underneath. Tractair's 105 cfm provides ample air-power to run this money-saving tool.

—for Money-saving Usefulness

You get air power and tractor power in a single self-contained unit

Just think what you can do with air power to keep your costs down — break pavement, dig clay, drill rock, tamp fill, vibrate concrete, and many other jobs.

And Tractair gives you *self-propelled* air power for still greater utility — anywhere, anytime. There's no need to tie up trucks or men for transportation. Tractair does it all. Lets you put the money-saving usefulness of air to work where you need it.

Moreover, Tractair can be equipped with a sturdy front-end loader having eight quickly interchangeable accessories. When so-equipped Tractair handles loading, lifting, back-filling, and snow-plowing in addition to its other duties.

That's why Tractair's the buy for money-saving usefulness. And you cut costs further still when you team Tractair with Le Roi-CLEVELAND air tools. Job data-sheets and bulletins showing how Tractair saved money for others are available upon request. Write today.

LE ROI COMPANY

MILWAUKEE 14, WISCONSIN

PLANTS: MILWAUKEE • CLEVELAND • GREENWICH, OHIO

T 18

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IN PIPE LINE CLEANING FROM MAINE TO CALIF., ITS...

CALIFORNIA...

"FLEXIBLE"

"Flexible" Power Drive & Propeller Tools Rid Heavy Scale From 12-Inch Waste Water Line In Calif. Refinery.

MAINE...

"Flexible" Power Bucket Machine At Work In City Sewer Line, Sanford, Maine. Five Cubic Yards Of Rock And Sand Removed From One Line Alone!

AMERICA'S LARGEST MANUFACTURER OF PIPE CLEANING TOOLS AND EQUIPMENT

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UNDERGROUND PIPE CLEANING CO. — SEWER-ROD EQUIPMENT CO.

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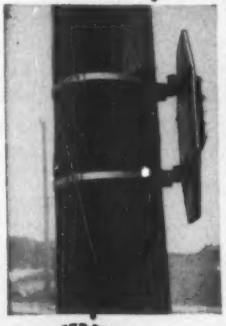
STEEL STRAPPING

FOR ATTACHING SIGNS



The A. J. Gerrard Strap Man would be pleased to show you how you can stretch your budget for sign maintenance.

Savings can be made with either Stainless Aluminum, or Galvanized Brackets, Seals, and Strap.

Write for full information, and the name of the nearest Strap Man who will gladly demonstrate the A. J. Gerrard Improved Methods.—No obligation.

55-3

STEEL STRAPPING

A. J. Gerrard & Co.

1952 HAWTHORNE DRIVE • MELROSE PARK, ILL.
(Chicago Suburb)

. . . make Your municipal beach complete with a STANDARD Steel Pier

• SAFETY

All steel . . . endorsed by Camps, Resorts, Civic Organizations. Will withstand all the use you can give it. Designed for SAFETY FIRST!

• UTILITY

No maintenance . . . Sectional . . . Easily assembled. Available with Ladders . . . Benches . . . Diving Board . . . Railing . . . Steps . . . Guard Tower.

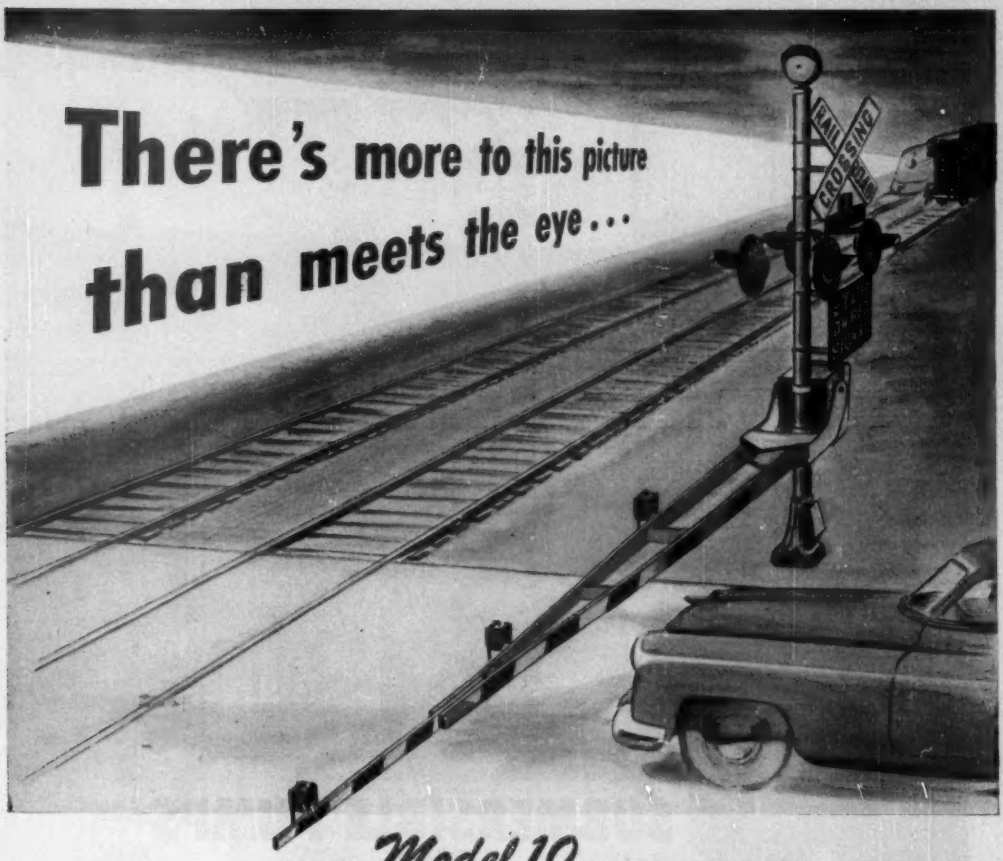
• BEAUTY

Beauty in every detail. Baked enamel finish.

Send us a rough sketch . . . giving water-depth and dimensions to meet your dock need. We will quote prices and make our recommendations without obligation.

STANDARD STEEL PRODUCTS MFG. CO.

2836 S. 16th ST., MILWAUKEE 15, WISCONSIN



SCENE: *Model 10* **AUTOMATIC SIGNAL IN ACTION**

Unseen—by the impatient motorist—is an on-rushing second train, concealed by the first. But there's no danger here of a dreaded "second train accident." Model 10's flashing lights will *continue* to operate, and the barrier arm will *remain* down until both trains have cleared the crossing.

Unseen—something that can't be illustrated: Model 10 *dependability*. Model 10's operate unfailingly, even when temperatures are extremely high or low . . . and regardless of snow or sleet. Moreover, Model 10's are on the job 24 hours a day—never go "off duty."

Unseen—the safety record established by Model 10's: Since 1936, thousands of these signals have been placed in operation at busy crossings, and *not a single accident has ever occurred as a result of operation failure.*

Unseen—the considerable dollar-and-cents economies effected by Model 10 protection. The low cost of Model 10 installation, operation, and maintenance is written in the records of a hundred railroads.

There's much more to tell about Model 10 safety and economy. Write for Bulletin AC6—748.

WESTERN RAILROAD SUPPLY COMPANY

General Offices and Factory:
2428 SOUTH ASHLAND AVENUE • CHICAGO 8, ILLINOIS

BJ SUBMERSIBLE PUMPS

save space, reduce installation cost, and eliminate the expensive pump house eyesore

MELTING SNOW, heavy rains, and general water drainage are big problems in underpass flood control planning. This photo shows how you can meet these troublesome flood demands with new efficiency and at far less construction cost. The old standard pump house installation (at left), expensive and unattractive, can be replaced by unseen yet easily accessible BJ Submersible Pumps. These pumps are placed in a simply-constructed pit between highway lanes. They provide all the pumping capacity you need, yet use less than 1/10th the space required by a standard pump installation.

Plan your new underpass construction with BJ Submersible Pumps. And keep these space-saving pumps in your general water supply and water control program. For full details, specifications and capacities, contact your local BJ representative or send the coupon below.

BJ PUMP DIVISION, Dept. 50

Please send me full details on the BJ Submersible, including data on actual municipal installations.

NAME_____ TITLE_____

DEPT._____

CITY_____ ZONE____ STATE_____

No obligation, of course

Byron Jackson Co.
Since 1872
P.O. BOX 2017 TERMINAL ANNEX,
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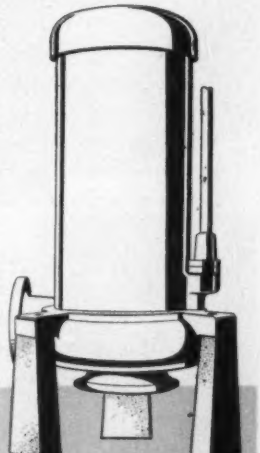

BJ Underpass Submersible with 2-port non-clogging runner.

OPERATORS SAY:

there's Always a job

FOR A LULL Shoveloader

- DIGGING
- LIFTING
- LOADING
- TRANSPORTING
- SCRAPING
- FILLING
- BULLDOZING

Anyplace . . . Anytime . . .

RURAL

RESIDENTIAL

URBAN

LULL

ATTACHMENTS

that make your SHOVELOADER adaptable to more jobs:

- Material Bucket
- Alternate Material Bucket
- Loose Material Bucket
- Coal or Snow Bucket
- Pavement Ripper Bucket
- Concrete Bucket
- Standard Bulldozer
- Moldboard Extension for Standard Bulldozers
- Special Width Bulldozer
- Lifting Crane
- Log Lifting Forks
- Fork Lift Attachment
- Sweeper

"YOU NAME THE JOB and a LULL SHOVELOADER can do it!" say amazed operators everywhere. It is the ideal equipment for Winter or Summer operations—rips pavements, digs hard materials, lifts and loads, scrapes and fills, as well as bulldozes. The LULL SHOVELOADER is the most powerful front end tractor loader available. In addition, the long reach bucket permits rear loading of trucks . . . lets traffic proceed at normal flow. Fast power hydraulic action plus close-in maneuverability makes the LULL SHOVELOADER efficient anywhere . . . anytime.

- Let your nearest LULL distributor demonstrate the flexibility of the LULL SHOVELOADER for all year 'round service.

Get LULL SHOVELOADER facts TODAY.
MAIL THIS COUPON NOW!

See the LULL SHOVELOADER in action and you will know it's the best.

LULL Manufacturing Company
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LULL SHOVELOADER AND ATTACHMENTS

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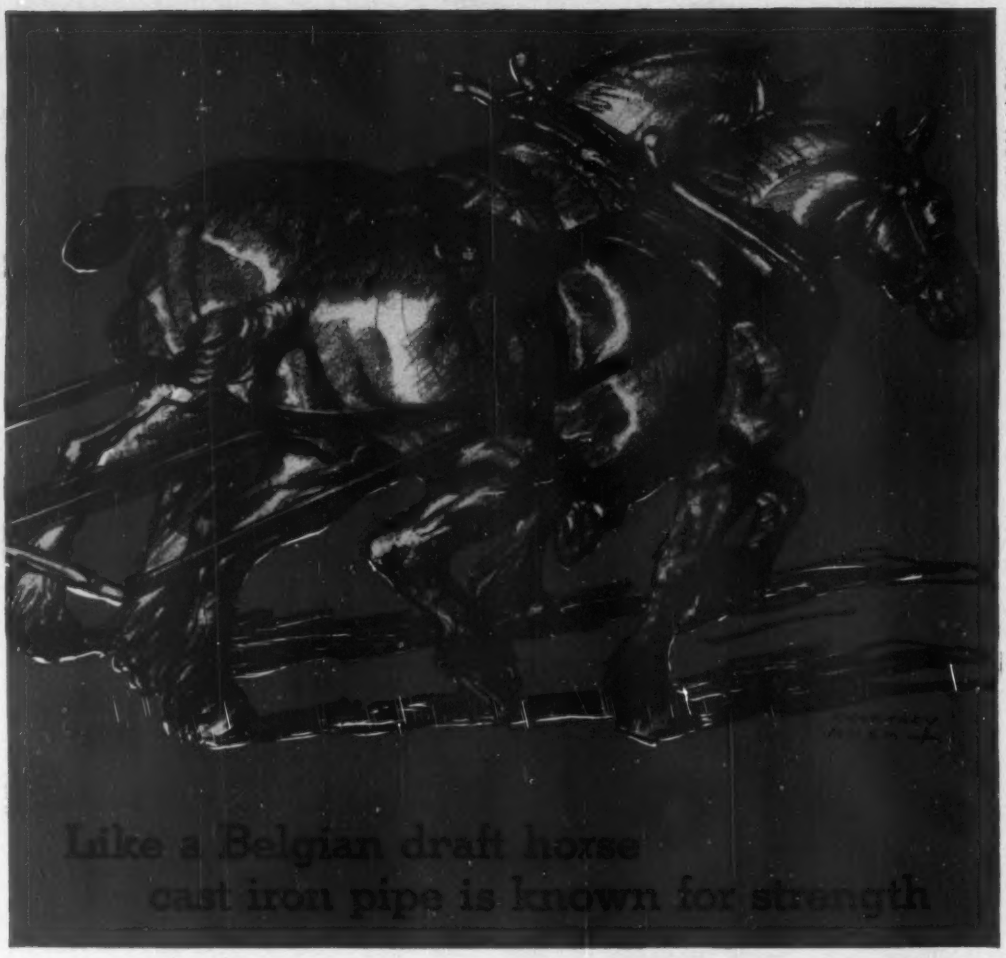
Designers and Builders of
The Largest Line of Allied Equipment
for Industrial Wheel Type Tractors

SHOVELOADERS • UNIVERSAL LOADERS • FLUID-DRIVEN SWEEPERS • LULLDOZERS • SHOULDER MAINTAINERS

STRENGTH is vital



Be doubly sure when you specify pipe for mains to be laid under city pavements. Sure that it effectively resists corrosion. Sure, also, that it has the four strength factors, listed opposite, that pipe must have to withstand beam stresses, external loads, traffic shocks and severe working pressures. *No pipe, deficient in any of these strength factors, should ever be laid in paved streets of cities, towns or villages.* Cast iron water and gas mains, laid over a century ago, are serving in the streets of more than 30 cities in North America. These attested service records prove that cast iron pipe not only assures you of effective resistance to corrosion but all of the vital strength factors of long life and economy.

in pipe for city streets

No pipe that is deficient in any of the following strength factors should ever be laid under paved streets.

CRUSHING STRENGTH

The ability of cast iron pipe to withstand external loads imposed by heavy fill and unusual traffic loads is proved by the Ring Compression Test. Standard 6-inch cast iron pipe withstands a crushing weight of more than 14,000 lbs. per foot.

BEAM STRENGTH

When cast iron pipe is subjected to beam stress caused by soil settlement, or disturbance of soil by other utilities, or resting on an obstruction, tests prove that standard 6-inch cast iron pipe in 10-foot span sustains a load of 15,000 lbs.

SHOCK STRENGTH

The toughness of cast iron pipe which enables it to withstand impact and traffic shocks, as well as the hazards in handling, is demonstrated by the Impact Test. While under hydrostatic pressure and the heavy blows from a 50 pound hammer, standard 6-inch cast iron pipe does not crack until the hammer is dropped 6 times *on the same spot* from progressively increased heights of 6 inches.

BURSTING STRENGTH

In full length bursting tests standard 6-inch cast iron pipe withstands more than 2500 lbs. per square inch internal hydrostatic pressure, which proves ample ability to resist water-hammer or unusual working pressures.

CAST IRON PIPE RESEARCH ASSOCIATION, THOS. F. WOLFE, MANAGING DIRECTOR, 122 SO. MICHIGAN AVE., CHICAGO 3.

CAST IRON PIPE SERVES FOR CENTURIES

MEN WORKING . . .

We're receiving orders for traffic control and highway marking signs in ever-increasing numbers. And we've expanded our plant to take care of this increase.

Some items are available now and we're breaking our neck to get the critical materials to fill your other requests.

Please bear with us in placing your orders. We will not deviate from the Miro-Flex high standard of quality.

THE MIRO-FLEX CO.

MANUFACTURED BY

MIRO-FLEX CO., INC.

1824 EAST SECOND STREET—WICHITA, KANSAS

WITH A WILKINSON LINE LOCATOR

You DON'T have to GUESS

WILKINSON LINE LOCATOR

the original light-weight, compact, precision locator — **is POWERFUL.**

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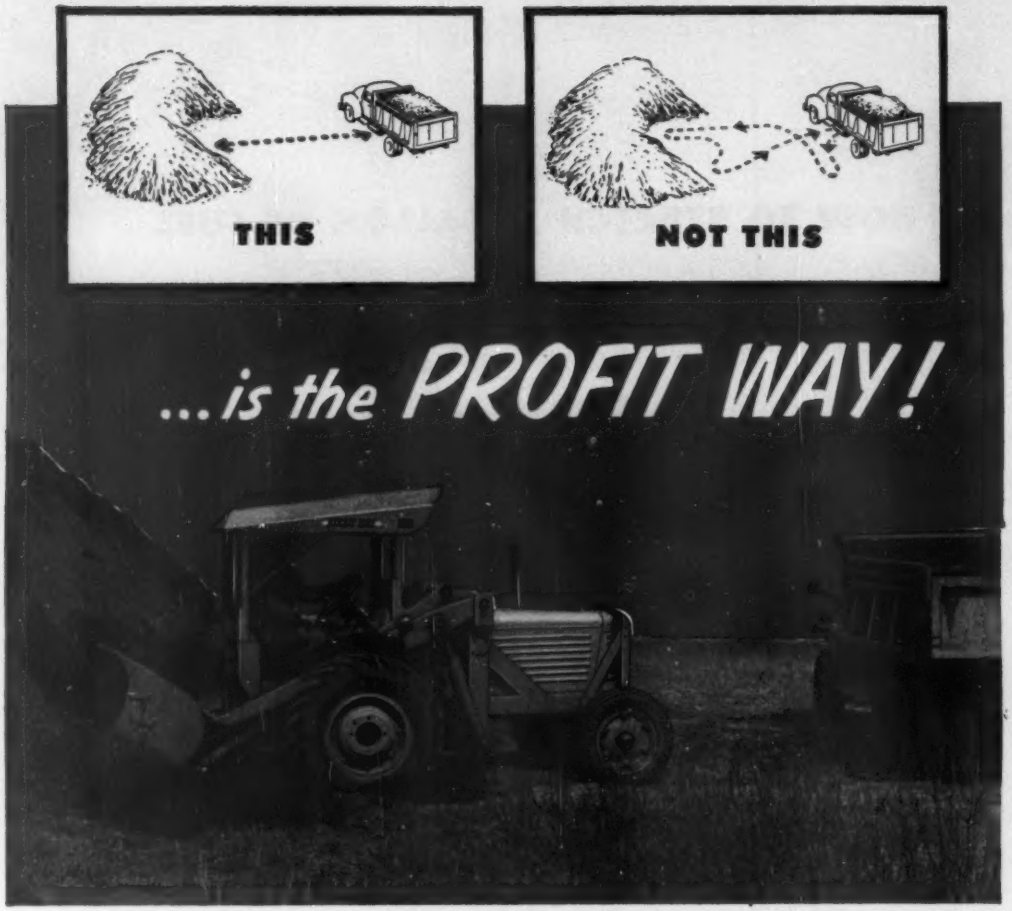

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Lack of Meter Depreciation Astounds Water Rate Probers

Depreciation, bugaboo of industry, is not part of a water meter expert's worries.

There is no such thing, said the New York meter expert who was summoned by Rochester and Lake Ontario Water Service Corporation to appear before the Public Service Commission.

The commission, investigating the rates charged by the company, was mystified by the company's statement that water meters did not depreciate.

Almost unheard of they said.

So up from New York came the expert who backed up the company in every detail. He took a meter apart under the eyes of the commission and explained its workings. A meter manufactured in 1898, he said, is repaired with parts manufactured today.

Not only is there no depreciation, but there is scarcely any change in design. So he took an old meter, fitted in new parts, and it worked perfectly.

Under PSC regulations the company must test its meters every five years. The company more than complies with these rules, officials said.

Rochester "Democrat and Chronicle"

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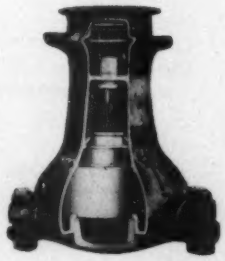

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Los Angeles Aims at Perfection

New Hyperion Activated-Sludge Plant incorporates thorough treatment, power development, and fertilizer production

By GEOFFREY A. PARKES
Chief Engineer
Hyperion Activated Sludge Plant
Los Angeles, Calif.

FOR over 50 years the City of Los Angeles has discharged sewage into the waters of Santa Monica Bay. As the city has grown, increasing quantities of sewage have been discharged, and the adjacent beaches for 10 or 12 miles have become grossly polluted. These beaches, once considered the best and most accessible on the West Coast, have for several years been closed to public use by a quarantine imposed by the State Department of Public Health.

Now, however, these conditions have been corrected, for Los Angeles, working with a number of suburban cities, has placed in operation the $41,000,000 Hyperion Activated Sludge Plant, the largest and most modern of its type in the world.

The plant covers roughly 75 acres. It receives liquid wastes from 3,000,000 people, is designed to handle an average dry-weather flow of 245,000,000 gallons daily, a peak dry-weather flow of 350 mgd, and storm peaks of 420 mgd. Its treatment is such that it can receive sewage having a suspended-solids content of 340 ppm and a BOD of 250 ppm, and purify it to figures no greater than 25 to 35 ppm when discharged to the ocean.

Architecturally, the plant reflects sanitation and cleanliness at every corner. Functionally, it is not only able to purify the wastes, but is also able to turn them to constructive use in virtually every way now known to sanitary-engineering science. The sludge-digester gas fuels a meticulously designed power plant. The sludge itself evolves as a useful, marketable soil conditioner. Plans are also being studied for the utilization of the purified effluent for industrial purposes for the replenishment of underground water supplies.

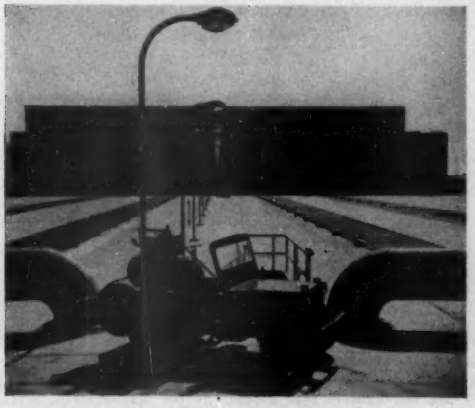
The plant receives its liquid wastes from two outfall sewers. These fix the top capacity that it must handle. Under free gravity flow, these sewers can be expected to contribute no more than 350 mgd. During a storm, with pressure from the entire system to boost the capacity, the combined flow will, according to expectations, rise to 420 mgd.

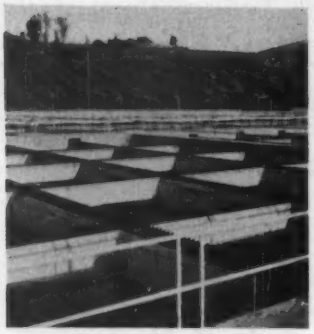
Bar Screens and Comminutors

The plant receives the sewage in the headworks building. The coarse material is both screened and comminuted in an unusual arrangement that allows the use of smaller comminutors and reduces the power requirements. The sewage first passes through four Dorrco automatically raked bar screens that remove the debris. This in turn is conveyed to two 36-inch Chicago Pump Company comminutors, macera-

Right: The aeration tanks, with Saran-wrapped swing diffusers. In the background are the final settling tanks.

Below: Not a parking area, but covered settling tanks. The building in the background is the power plant.





The receiving channels for the final settling-tank weirs criss-cross the surface with a checkerboard pattern.

ted, and returned to the sewage flow in a condition that makes it easier to handle in the rest of the plant. Chapman motor-operated gate valves direct the flow to the proper mechanical screen as operation dictates. Part of the sewage around the bar screens is used to operate the comminutors and to help grind the screenings.

The next step in the treatment is the removal of the inorganic portion, such as sand and other detritus: it is removed by three Dorr Detritors, each 60 feet square. This material is then pumped to grit washers, drained, and removed by trucks for fill. The sewage then leaves the headworks and is measured by two 108-inch Builders-Providence venturi meters. Also in the headworks are housed six 6,000-pound Wallace and Tiernan chlorinators with evaporators, platform scales, and tank-handling equipment. These chlorinators provide for pre-chlorination of the incoming sewage or for post-chlorination for disinfection of the final effluent.

The sewage then goes to the primary-settling tanks. First, it receives 30 minutes of pre-aeration in order to improve flocculation and settling, and then goes to eight covered settling tanks, each 300 feet long and 56½ feet wide. The normal detention period is 1½ hours. Each tank is equipped with Jeffrey traveling sludge collectors to force the sludge to the digestion tanks. Grease is also skimmed from the tanks and transported to the digesters by Yeoman pneumatic ejectors. The covered tanks permit the removal, by forced ventilation, of foul odors emerging from the settling tanks and the pre-aeration tanks.

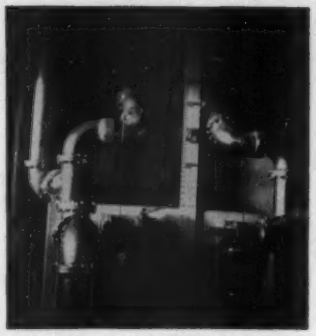
Four primary sludge-pumping stations, all underground, each contain three Chicago Scrupeller pumps, with Reeves variable-speed drives, which pump sludge to the digestion tanks. These stations are connected to other parts of the plant by underground pipe tunnels containing pipes for sludge, grease, steam, and high- and low-pressure effluent for various plant purposes.

Design Features of Aeration and Settling Tanks

The primary effluent may be diverted to the submarine outfall and thence to the ocean, if desired. But under normal operating conditions, the sewage will flow to the aeration tanks to undergo activated sludge treatment.

The aeration tanks are not covered. There are 32 of these tanks, each 300 feet long and 30½ feet wide. Average detention time is 3.22 hours, and the application of air will average 0.51 cubic feet per gallon of sewage. The aeration tanks are equipped with the new Saran-wrapped Chicago Pump Company swing diffusers, whose record of convenient operation and easy cleaning was impressive to the designers.

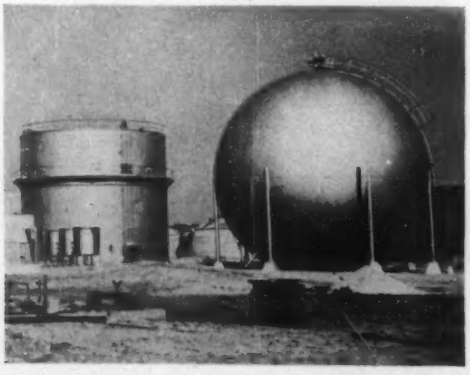
The aerated mixture of sewage and activated sludge then flows to the final settling tanks, also uncovered. There are 20 of these final-settling tanks, each of which are 125 feet long and 76 feet wide. The units are equipped with Link-Belt sludge collectors. The tanks have an unusual effluent weir design. Some designs place the effluent weir and receiving channel at one end of the tank; others, away from the end so that both sides of the channel will receive effluent. These channels criss-cross the entire surface with a checkerboard pattern so that the effluent can flow away quietly without disturbing the light humus in the tank itself.



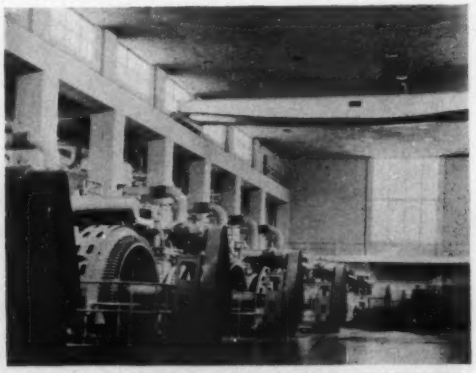
Transfer of sludge from one digestion tank to another can be controlled by this inverted "V" swing-pipe.

The sludge is pumped to the aerated return activated channel and a portion flows by gravity to the aeration tanks. The portion no longer needed in the process is pumped from this channel to the head of the primary settling-tank unit and settled out with the primary sludge.

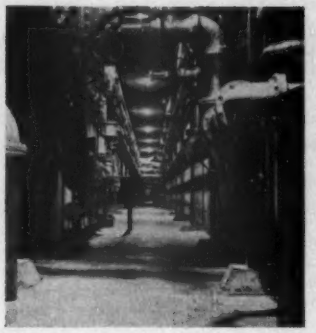
The final clear effluent flows to the surge chamber at the upper end of the submarine outfall. This is a rein-



The plant has two holders for digester gas—a General American Wiggins holder for low-pressure storage (left), and a Hortonsphere for high-pressure storage (right).



Here is the power plant, with a platoon of dual-fuel engines powered by sludge gas. Also housed in the plant are the blowers that supply air for the aeration tanks.



"Buzzards Corner." Two pipe galleries interseet at this point. They serve the 18 sludge-digestion tanks.

forced-concrete sewer having an inside diameter of 12 feet, and extending 1 mile from shore. It consists of two parts, an in-shore section and off-shore section. The in-shore section extends through the breakers and consists of 12-foot lengths of precast-concrete pipe on steel pipe-support foundations, and is entirely cased in concrete. The off-shore section consists of thirty-two 100-foot lengths of precast-concrete pipe. The joints consist of a special cradle-shaped bell to support and center the spigot end of the adjoining pipe. A heavy 3-by-12-inch rubber gasket and a reinforced-concrete collar were installed at each joint to prevent further leakage. Added strength was obtained by anchoring each section to the reinforced-concrete cap at the joints which, in turn rest on steel-pile foundations.

The last three lengths of pipe each have two outlets in the lower quarter of the section, midway between joints, and with two added outlets on the end of the last pipe section. The water depth is about 45 feet at mean tide.

The disposal of the solids removed from the sewage shows resourcefulness. The plant has 18 digestion tanks, each 110 feet in diameter, and with 30½ foot water depth at the wall. They are arranged in three batteries of six tanks each; four tanks in each battery provide primary digestion, and two, secondary. The primary tanks are maintained at 95° F. by means of live steam produced by waste engine heat from jacket water and exhausts from the engines. The digestion supernatant flows to the head of the pre-aeration tanks.

There are three sludge-pumping stations in the digestion system, all underground, served by long pipe galleries. At each station are four Chicago Scrupeller pumps operated through Reeves variable-speed transmissions; this permits extreme flexibility in transferring sludge between tanks or to any required destination.

The digesters have an interesting swing-pipe arrangement that permits transfer of sludge from one to the other. The pipe is shaped in the form of a siphon. The top of the "U" can be swung to the elevation desired for withdrawing the sludge, and the flow automatically stops at that point.

Digested Sludge

The digested sludge is first conditioned in an elutriation system which consists of two counter-current wash tanks and one concentration tank. Each is 200 feet long and 37½ feet wide, and they are 14½, 15½, and 15½ feet deep, respectively. This washing action makes the sludge easier to dewater on the filters by removing chemicals from the digested sludge which would interfere with further treatment.

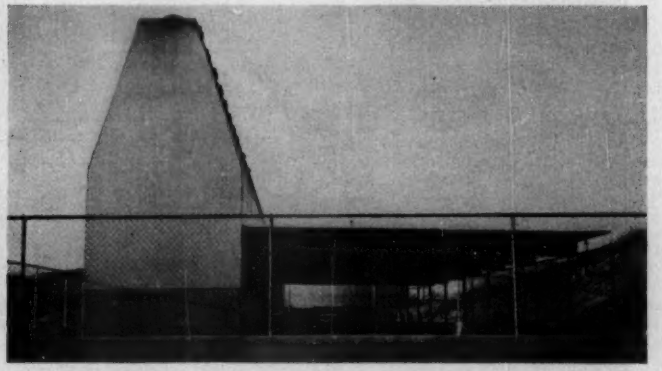
The sludge is conditioned with ferric chloride and filtered on 12 Eimco vacuum filters, each with an area of 570 square feet. The cake produced is carried on conveyors to four Raymond flash driers. Each drier unit evaporates 22,500 pounds of water per hour, and either dries the sludge to fertilizer with a moisture content not to exceed 10%, or incinerates it to a sterile ash. Normally, the drier will use digester gas; however, it can use natural gas, oil, or any combination of the two. Water vapor, furnace gases, and any foul air are vented through an adjacent stack 200 feet high. The plant has storage capacity for 2,200 tons of fertilizer. The city is now negotiating with a fertilizer company to market the product.

The sludge is dewatered on 12 Eimco vacuum filters after it is chemically conditioned with ferric chloride.

As mentioned previously, the plant has its own power plant. This also houses the blowers that supply air for the aeration tanks. In this plant are nine supercharged Worthington dual-fuel diesel-type engines, each of 1,688 hp. The engines are equipped with vapor-phase units and exhaust water heaters, both of which generate steam for the digesters. The vapor-phases cooling of the engine-jacket water is a new process for engines of this size. It

(*Continued on page* 169)

The sludge cake turns to a powder in this Raymond flash drier. The dried product can also be incinerated.



Probably the largest bank of waste-gas burners and flame traps in any sewage plant in the country. The installation is lined with fire brick and is set far enough away from the rest of the plant to eliminate any danger of fire.

Rochester Goes to Lake Ontario for Water

Improvement represents cooperative action by city and industry

By KENNETH J. KNAPP
City Engineer
Rochester, N. Y.

SINCE 1872, the City of Rochester, N. Y., has obtained its water supply from upland sources. Increased water use during and after the war, plus recent unusually dry years, presented a supply problem that needed a quick solution. After thorough studies, it was decided that Lake Ontario would provide a completely satisfactory and dependable source for a supplementary water supply.

Hemlock Lake Principal Source in Past

In the past, Rochester's water has come principally from Hemlock Lake. This water is not filtered but, of course, it is chlorinated. It is delivered to city reservoirs by gravity through 28 miles of conduit.

The original conduit was planned for a capacity of 9 million gallons per day. Additional conduits have been added, and this upland source was able to supply, in 1949, an average of 39 mgd, with a peak day of over 50 mgd. It was thought that the annual increase of about 1 mgd per year experienced during the war years would fall off after the war, but this did not occur. The increased demand continued to the point where it was found necessary to enforce a water-conservation ordinance directed principally at refrigeration and air conditioning. This enforcement brought about a slight drop in use during 1950.

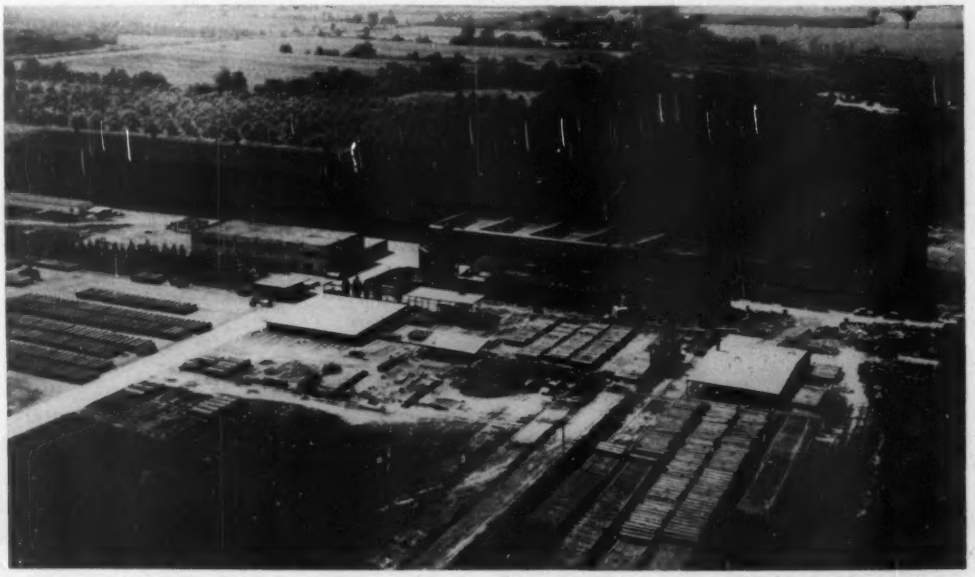
Because of this continued increase and because of unexpected dry seasons which reduced the upland supply sources, it became evident that some additional source of supply must be obtained. Accordingly, a study was made of the upland source. This study showed that there were additional catchment areas which could be diverted into our lakes, but at considerable cost. There was also a question of time. A large increase in upland supply would involve the eventual construction of a new 28-mile conduit to bring this additional supply to the city.

Consideration of Lake Ontario as a source was made possible only by a striking example of cooperation between industry and government, especially as it involved an industry which is not dependent upon the city system for the water it uses. The Eastman Kodak Company generously offered the city the use of the company's intake in Lake Ontario. When Eastman designed its intake, it was done with the anticipation of future expansion. As a result, the intake was of sufficient size to permit the city to use up to 36 mgd.

Treated water, as used by the Eastman Kodak Company at Kodak Park, must be pure and of uniform quality. Since 1934, the city has been using some of this water from the same supply after chlorination as an auxiliary supply during times of heavy demand, and it has proved very satisfactory.

Lake Ontario water was, therefore, available by the construction of a 9-mile supply line, and a filtering and purification plant. The filtering is required to provide clear water, as the lake water is somewhat turbid at certain seasons of the year.

It was decided to proceed with the plan, as it seemed to be the quickest and most economical. The general plant consists of low-lift pumps taking the water from the Eastman Kodak intake



Temporary plant for making prestressed concrete steel-cylinder pipe. Eighty percent of the labor used was local.

well into the pretreatment tanks. From there it goes to the filters, and then to the clear well. High-lift pumps then push it up to a booster station, and this lift passes it into the distributing system. Consultant on the design of the new plant is Allen C. Bailey, who is responsible for the production of water for the Eastman Kodak Company. The city was fortunate to secure his services.

The supply conduit was designed for an ultimate capacity of 60 mgd, resulting in a 48-inch pipe for the main, and 36-inch and 24-inch pipe for the laterals. Our previous experience with metal conduits pointed to concrete-lined and covered pipe. Specifications were drawn on this basis, and when bids were received, it was found that prestressed concrete pressure pipe was the material that would be used. The low bid was presented by Price Brothers Company, of Dayton, Ohio. The contract called for 34,000 lineal feet of 48-inch, 9,400 lineal feet of 36-inch, and 2,400 lineal feet of 24-inch pipe, and the necessary specials.

Portable Plant

Shortly after the contract was awarded, Price Brothers moved into a portable manufacturing plant, and were in production within 70 days of the date of the award of the contract. Eighty per cent of the labor was local. The plant was located on the route of the supply line, near its beginning. The site was a former shipbuilding yard.

The contract for the pipe was awarded during the last week of February 1950, and the plant was in production during the first week of May. The contract was completed on September 20, enabling the contractor to have virtually all the pipe laid by December 1, 1950. Water was introduced into the pipe less than 10 months after the contract was awarded.

It was decided to purchase all equipment and as much material as possible, and include the installation in the general contracts.

Selection of Equipment and Materials

The low-lift pumps are two in number; one having a capacity of 12 mgd, driven by a 200-hp, 2,300-volt, 60-cycle, 3-phase induction motor operating at 870 rpm, and the other having a capacity of 24 mgd, driven by a 350-hp motor. These pumps will operate against a head of 57 feet. The contract for these pumps has been awarded to the Fairbanks-Morse Company. The chemical pretreatment tanks are of the suspended-solids contact-basin type. There are six units, each having a capacity of 6½ mgd. It was decided that this arrangement was the most flexible scheme for operating purposes. The tanks will have a total retention period of 60 minutes, and will operate at a maximum rate of 1.75 gpm per square foot of surface area. Eight chemical filters will permit the use of alum, lime, clay, alkali, and activated carbon, with one used for fluoride. The flow will be controlled by pneumatically operated controls. The contracts for the pretreatment tanks and the pneumatically operated controls have been awarded to the Permutit Corporation.

The filters are of the rapid-sand type. There are 12 filters, consisting of two beds, each 30 feet and 10½ inches by 18 feet. Each filter has a capacity of 3 mgd. The bottoms consist of carborundum plates about 1 foot square. The plates will be covered by 24 inches of especially graded sand. Plans provide for 144 surface washers. The contract for the material for these filters has been awarded to Infilco. Wash water for the filters will be provided by pumps having a capacity of 8,500 gallons per minute. The contract for these pumps has been awarded to Allis-Chalmers.

Four High-Lift Pumps

The high-lift pumps will also be located in the Lake station. These are four in number, each with a 16-inch intake and 14-inch discharge and a capacity of 12 mgd. They are driven by 600-hp, 2,300-volt synchronous motors. One of these pumps is equipped with a hydraulic coupling which will make it possible to control more easily the quantity of water pumped. The pumps are designed to operate against a head of 230 feet. Space is being left for the installation of two more pumps of similar design, in case it becomes necessary in the future to develop the full 60-mgd capacity of the conduit. A similar installation of pumps is being made in the booster station. The contract for these high-lift pumps for both stations has been awarded to Allis-Chalmers.

The switch gear and electrical equipment contract has been awarded to Westinghouse; cone valves and pump-control valves, to S. Morgan Smith; venturi tubes and automatic air valves, to Simplex; gate valves, to Rensselaer; hydraulic filter-bed valves, to Darling; sterilization equipment, to Wallace and Tiernan; laboratory furniture, to Kewaunee. The general contract for the booster station is being awarded to A. Friederich & Sons. Plans are in preparation for the pump-station building. The outside dimensions of the filter plant and pump station will be 320 by 260 feet.

The power will be purchased at 11,000 volts, and will be supplied from the Rochester Gas & Electric Corporation 11,000-volt loop. This will give us at least two sources of power supply for our plant; the 11,000-volt source will be transformed to 2,300 volts, and from there down to whatever lower voltage is required. The design and the preliminary work required for the preparation of plans has been done by the force of the City Engineering Bureau, with Allen C. Bailey as consultant.

University of Pennsylvania Announces Ambitious Planning Program

THE METROPOLITAN region of Pennsylvania, New Jersey, and Delaware—centering in Philadelphia—will be the major focus of a three-way attack on urgent problems of modern cities, Harold E. Stassen, President of the University of Pennsylvania, announced last month.

The first of the three interrelated programs will be the inauguration in September of undergraduate and graduate degree courses in city planning.

The second and third facets of the program will be tackled by a faculty group drawn from many departments of the University, which is being formed into an Institute for Urban Studies to engage in a basic research on cities and their problems generally, and also to be of service to the community through specific studies of the Philadelphia area, Mr. Stassen revealed.

The work of the new institute will begin at the start of the school year next September, offering professional instruction in city planning. Forming the nucleus of the institute will be the faculty of the University's new Department of Land and City Planning. The chairman of the new department and professor of city planning will be Robert B. Mitchell, under whose direction the three-fold program of education, basic research, and service to the community will be undertaken.

Mr. Mitchell returns to Philadelphia from Columbia University where he has been research professor at the Institute for Urban Land Use and Housing Studies. Before going to Columbia in 1948, he had been Executive Director of the Philadelphia City Planning Commission for six years where he initiated the program which continues to set such a high standard of service and leadership.

G. Holmes Perkins, who came to Pennsylvania as Dean of the School of Fine Arts in February, was instrumental in establishing the new Department of Planning and the Institute for Urban Studies. Dean Perkins, who was formerly Chairman of the Department of Regional Planning at Harvard University, will participate actively.

Among others who will contribute to the new undertaking will be Lewis Mumford, professor of regional planning, noted author and lecturer, who has long been a leader in the development of regional planning thought in this country and abroad.

Pavement Rehabilitation

A balancing of the economic factors that separate street rehabilitation from ordinary maintenance or capital construction

By WILLIAM LEONARD CHILCOTE
Deputy Highway Engineer
Department of Public Works
Baltimore, Md.

REHABILITATION is a relatively new development in paving technique. Until recently Baltimore considered only the construction of new pavements and their subsequent maintenance. We have learned, however, that we must conserve our existing facilities in order to realize the most for each tax dollar spent. This conservation of the original expenditures in our highway system is accomplished through rehabilitation.

Let us differentiate between new construction, maintenance, and rehabilitation. Both new construction and reconstruction can be considered in the same category, i.e., the roadway is completely new, from subgrade to finished surface. This new construction is a capital improvement.

After the new roadway pavement is constructed and in service, it is maintained and kept in good condition. This is maintenance. When maintenance approaches a point where it is neither economical nor practical to continue, or the roadway is cut up because of the installation of underground services, then the pavement must be restored. By repairing or patching the old pavement, curb, etc., adjusting surface structures, leveling up depressions, and completely surfacing or resurfacing the entire roadway with hot-placed bituminous materials, the entire pavement is restored. This is rehabilitation.

How Rehabilitation Works

For all practical purposes, a rehabilitated roadway will give the same service as a newly constructed roadway. The techniques involved are simple. For example, it is reasonable to assume that after an old roadway pavement has been in service for several years it has taken set, and except possibly for a few sections, it is resting on firm subgrade. The first step, then, is to make repairs where the base failures occur, and repairs should be kept to a minumum.

Then the entire roadway surface is cleaned and given a tack-coat of asphalt emulsion, which both seals the cracks and acts as a cementing medium. All low spots and depressions are leveled up, using a hot-plant-mixed asphaltic-concrete binder. The entire roadway is then covered with the hot-plant asphaltic-concrete binder, and sheet-asphalt surface placed with paving machines in two courses; or a bituminous concrete surface placed in either one or two courses. These materials are compressed, while they are hot, by rolling until the surface is smooth.

On roadways where surface-car operations have been discontinued, and the old steel rails abandoned in place, the foregoing procedure applies. The steel rails are "plugged," and the railway area leveled up with hot asphaltic materials. From experience to date, covering these old rails does not offer any difficulty. On the other hand, it is quite possible that the steel rails supported both by the roadway slab and the stone ballast offer additional stability. Even though the old ties "rot out," there is no concentration of stress from the steel car wheel and the load rather than being distributed through the wood ties is transmitted through the surrounding slab to the stone ballast.

In many instances, an existing pavement is "cut up" from the installation

This shows one type of needed pavement rehabilitation. The surface itself is showing distress, and the street-car rails, no longer used, are creating a traffic hazard.

Lower left: The resurfacing gives special attention to covering the rails. Lower right: Here is the completed surface. The full width of the street is now available for traffic.

Strong but rough street with abandoned street-car rails.

The same street after resurfacing.

of subsurface utilities and services. Rather than tear up the old pavement completely, the cut areas are repaired, and the entire roadway is surfaced or resurfaced with hot-placed asphaltic materials, as previously outlined. After a roadway is rehabilitated and all surface water sealed off in line with the foregoing techniques, the life of the pavement is greatly prolonged. In Baltimore City, over 15,000 service cuts are made in the public highways yearly.

Few cities can finance an extensive highway reconstruction program from currently collected funds. Our problem then is to prolong the life expectancy of highway pavements comparable to the community's financial ability to pay.

Square-Yard Costs Compared

This can be accomplished through rehabilitation. For example, a new 9-inch concrete highway that would originally cost $8.50 per square yard, based on a 35-year maximum life expectancy, with no surfacing, would cost $0.243 per square yard per year, and even though it were properly maintained, at the end of 35 years it would require complete replacement. Let us now apply the rehabilitation principle. If this same highway were surfaced with sheet asphalt at the end of 20 years, the life of the pavement will be prolonged to at least 45 years, at a relative cost of $0.227 per square yard per year. If this same highway were resurfaced at the end of 45 years, an additional 20 years can be added to its life, and the highway will give useful service for 65 years, at a relative cost of $0.183 per square yard per year.

There is no apparent reason why these highways cannot be resurfaced a second time, provided the materials are feathered out at the curb and the crown is not too excessive. It is very conservative to estimate that this second surfacing will add another 15 years to the life of the pavement. In summation, we then have a total useful life expectancy for the pavement of 80 years, at a cost of $0.17 per square yard per year. This means there is an overall savings of $0.073 per square yard per year, extending over an 80-year period. Here is an example of the rehabilitation technique working.

The accompanying schedule indicates the relative cost of rehabilitating both a 9-inch and a 7-inch concrete pavement.

In retrospect, we have accomplished much in the past three years. During January 1948, a report on Baltimore's Proposed Paving Program stated that Baltimore would be out of the ruts in three years. In January 1951, three years later, we say, without reservation, that Baltimore is out of the ruts. In these three years we have rehabilitated over 410 miles of highway pavements.

Suppose we had attempted to completely reconstruct those 410 miles of rehabilitated highways; then the cost would have been more than $60,000,000 and the interest charges for financing this amount would have been approximately $9,000,000, for a 10-year loan period.

As we now stand, the cost of rehabilitating these 410 miles of roadways was approximately $12,400,000. They were financed from currently collected funds, with no interest charges. It must be recognized that this rehabilitation work has been accomplished at a cost not much in excess of the interest charges, had the reconstruction loan method been used. Also, the time element involved for complete reconstruction would have been prohibitive from a traffic point of view. To all intents and purposes, these rehabilitated highways have the same relative use-value as a totally new reconstructed highway.

Relative Schedule of Costs Per Year Per Square Yard For Various Conditions of Pavement

Type of Pavement	*Cost-Sq. Yd.*	*Maximum Average Years of Service*	*Unit Cost Per Sq. Yd. Per Year*
9-inch Concrete, Unsurfaced....	$8.50	35	$0.243
9" Concrete, with.....	8.50	20	
2" Sand-Asphalt Surfacing.....	1.70	25	
	$10.20	45	0.227
9" Concrete with.....	8.50	20	
2" S. A. Surfacing and.....	1.70	25	
2" S. A. Re-surfacing.....	1.70	20	
	$11.90	65	0.183
9" Concrete, with.....	8.50	20	
2" S. A. Surfacing.....	1.70	25	
2" S. A. Resurfacing and.....	1.70	20	
2" S. A. Resurfacing	1.70	15	
	$13.60	80	0.170
7" Concrete, Unsurfaced.....	$6.00	25	0.24
7" Concrete with.....	6.00	15	
2" B. C. Surfacing.....	1.50	20	
	$7.50	35	.0.214
7" Concrete with.....	6.00	15	
2" B. C. Surfacing and.....	1.50	20	
2" B. C. Resurfacing.....	1.50	15	
	$9.00	50	0.180

Making Taxpaying Simple • • •

IF NOT PLEASANT

By PETER F. ROAN
City Manager
Mexico, Mo.

Posting a tax payment on one of the unit-ledger cards on file.

MEXICO, Mo. (1950 population, 11,700), set out to streamline the assessing, billing, and receipting of tax payments. For a small investment we have turned the "biggest job of the year" into one of the smallest.

Eliminating the bulky bound volumes, all assessment and tax data are now filed in a trim steel cabinet accessible to the tax collector and available as public records. The value of the system will increase during the 20 years for which it has been designed. In 1960 or 1970 a 10- or 20-year assessment and tax history of each parcel of property will be immediately available on the index cards.

The Old Books

Under the old system, separate assessment and tax records were kept in bound books. The assessment book, made out in longhand by the city assessor, was submitted to the City Council for approval and then turned over to the City Collector. The City Collector copied the assessments into the tax book. This procedure was slow, costly, and subject to many possible errors. When posting payments or when information was needed, it was necessary to flip through endless pages until the desired one was reached. At the end of each full year, a delinquent tax volume was set up, the old books being filed away with their musty companions.

All on Cards

The new system abolishes the assessment, the tax, and the delinquent tax "books," by setting up the assessment roll and tax roll on unit-ledger cards. Acme visible-records files are used. These individual cards show the assessed value, description, and location of the property. The tax-rate extension and payment history are shown on the same cards. Changes in ownership can also be recorded.

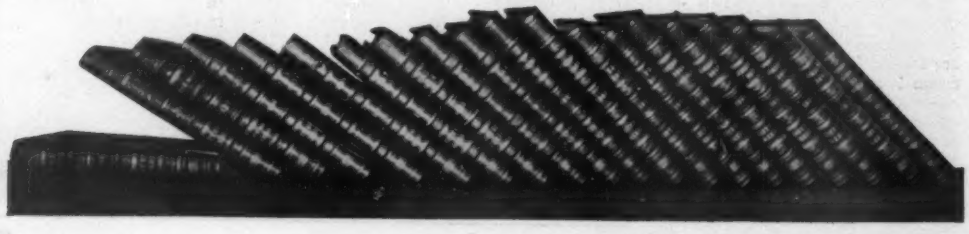
These cards are filed by subdivision, block number, and lot number. Control and balances are carried by subdivision, drawer total, file total, and master control cards.

The tax bills are computed from the unit operating cards. Tax payments are posted to the cards. Payments are also noted on the edges of the cards by the use of a symbol stamp. A glance at any drawer in the file indicates the general condition of tax collections. The delinquent record was compiled at the end of the year by the use of flags on the card, or a delinquent-symbol stamp.

A cross-reference index file comprises the second part. Each owner is listed alphabetically on an Acme Flex-o-Line file which is cross-referenced to subdivision, block, and lot number of the owner. This file is particularly useful when a taxpayer comes to the city office without his tax bill.

The fear of loss of the unit tax records was a deterrent when the new system was being considered. With the visible-record system, each card is securely locked in place. None can be unintentionally removed. The cards, printed on eye-rest green, are sprayed with a plastic compound after assembly. The plastic compound serves as a protection, and also darkens the exposed edges, permitting missing cards to be spotted immediately.

Time did not permit the inclusion of all of the tax and assessment records

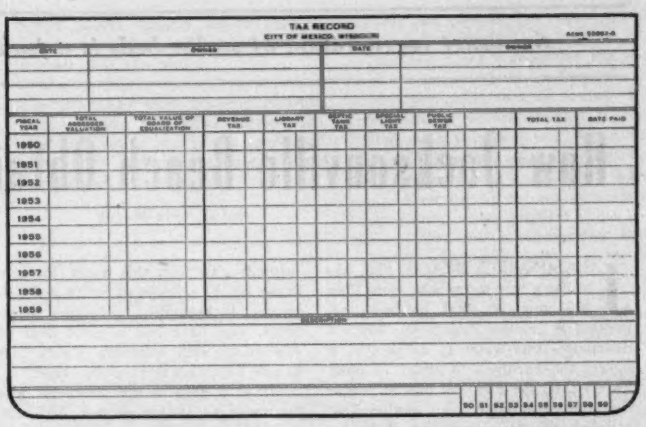


Ten years of old assessment and tax records, previously kept in these books, are held twice over by the visible-record file pictured above.

into the system. At present all real-estate and merchants' tax records, a total of 4,800 descriptions, are included in the new system. When the personal-property tax records are added, the new system will contain approximately 8,500 records.

No one likes to pay taxes, and if we can eliminate any of the unpleasantness—the wasted time, the inefficiency of the older system—we have accomplished more than the mere saving of money.

●


TAX RECORD
CITY OF MEXICO, MISSOURI

DATE	OWNER	DATE	OWNER

FISCAL YEAR	TOTAL ASSESSED VALUATION	TOTAL VALUE OF BOARD OF EQUALIZATION	REVENUE TAX	LADDER TAX	SEPTIC TANK TAX	BASEBALL LIGHT TAX	PUBLIC BUILDING TAX		TOTAL TAX	DATE PAID
1950										
1951										
1952										
1953										
1954										
1955										
1956										
1957										
1958										
1959										

DESCRIPTION

60 61 62 63 64 65 66 67 68 69

This is a reproduction of a 5 by 8, individual tax-record card on which is recorded data for 1950-59; the reverse side accommodates 1960-69.

Civil Defense Conference Attended by 1,500

By WALTER L. CRONIN
Director of Civil Defense
Cambridge, Mass.

THE Civil Defense Conference on May 7-8 at Washington, D. C., sponsored by the Federal Civil Defense Administration, was attended by the civil-defense directors of communities with a population over 50,000. However, they were supplemented by representatives of 300 national organizations for a total registration of approximately 1,500 persons. This meant that much of the material given at the conference was aimed at the representatives of these national organizations, and not at the local civil-defense directors, who have been informed of these matters for more than six months. Little technical work was, therefore, accomplished.

It should be noted that several of the speakers covering civil defense reported that their programs would be completed by *May 1, 1952.*

At a discussion for civil-defense directors and FCDA staff members, we were told that certain types of sirens have already been approved. These are to be purchased on a matching basis through the F. C. D. A. by way of state fiscal agents. It is suggested that communities make surveys immediately to determine their needs. The available funds, to be matched by similar amounts by states and communities, will be allocated on a critical target-area basis, as sufficient funds are not available at this time to provide for all communities. Purchase of equipment necessary to install these sirens properly will be paid for by the communities, who are to be reimbursed by the Federal Government on a matching basis.

Tentative plans have been considered to have a national civil-defense registration day at some time in the future.

The following are some of the points noted in several of the talks given at the conference of special interest to local officials:

Engineering Services, Hugh M. Beshers: Enough couplings and steel pipes will be stock-piled so that they can be used to transport water above ground, in the event of catastrophe. Auxiliary booster pumps, skid mounted, will be supplied on a matching basis for the purpose of maintaining hydrant pressure to fire pumpers or to hospitals and other emergency facilities.

Rescue Service, Richard C. Knight: It is estimated that our target areas in this country will require a total of 10,000 fully equipped rescue teams. A prototype rescue vehicle, fully equipped, manned by an eight-man rescue team, is planned by the Federal Civil Defense Administration.

Transportation, Dr. Sidney L. Miller: Special devices have been designed to adapt trucks as ambulances. These are devices that are readily stored and require no tools for immediate installation. They will provide a minimum of four stretcher cases.

Emergency Welfare, Raymond F. Schaefer: In each region a limited number of cots and blankets, pressure stoves, and cooking utensils will be stored, and limited amounts of emergency rations at strategic points.

Shelters, Raymond D. Spencer: Six square feet of space per person is the ideal established by the Lehigh Research Foundation of Lehigh University. Smaller space possibly could be justified under certain circumstances. Four floors or a substantial wall and three partitions in the average building will provide reasonably good shielding. Basements, in general, are not good as shelters.

Health and Special Weapons, Dr. Norwin C. Kiefer: There are no reserves of medical supplies, equipment, or material on hand; no stock-pile of drugs to combat nerve-gas effects, and no gas mask stock-piles of either a permanent or disposal type. Detailed specifications of medical supplies and equipment are now ready.

Fire Services, Kyle P. Laughlin: The possibility of fire storms in American cities is much greater than that in Hamburg or Hiroshima.

Supply, Arthur G. Eaton: A typical regional warehouse will contain the following: 180,000 cubic feet for medical supplies; 200,000 cubic feet for welfare supplies; 200,000 cubic feet for engineering supplies, and 8,000 cubic feet for pipe, etc. This will constitute a seven-day supply for a target city.

Norfolk to Hire Additional Policewomen

BECAUSE mobilization is drawing away many Norfolk police officers, both to military service and to higher paying positions in the naval establishment and other allied expanding concerns, the Norfolk City Council has approved the hiring of additional policewomen. R. T. Nichol, Administrative Assistant to the City Manager, reports that the policewomen will take over much of the clerical work in order that the men now doing this work may be given a beat.

Sea-water regeneration of zeolite beds is a feature of this installation

How Jacksonville Beach Obtains Soft Water

JACKSONVILLE BEACH, Fla., has to use a raw water with more than 300 ppm of total hardness expressed as calcium carbonate. When it distributes this water to its people, it lowers the hardness to about 75 ppm. To do this, the city has had to utilize the best practice in engineering, coupled with the cooperation of the Atlantic Ocean.

The city taps an artesian supply, which is usually free-flowing; however, the wells are equipped with pumps if the demand for water exceeds the free-flowing capacity. The demand varies greatly. Jacksonville Beach has a normal population of 8,000 and a summer peak population of 25,000.

Water Character

The water, in addition to total hardness, has methyl orange alkalinity of almost 120 ppm. It has about 10 ppm of free carbon dioxide, a small amount of iron, and about 2 ppm of hydrogen sulphide. To treat this water, the city draws on the services of Smith and Gillespie, Jacksonville consulting engineers, who have had a great deal of experience with softening plants that handle Florida waters of this type.

The first step in the treatment was the use of a tray-type aerator. This was designed to oxidize the iron, remove the free carbon dioxide gas, and, with four hours' retention in ground-storage reservoirs, remove the hydrogen sulphide.

Zeolite Softeners

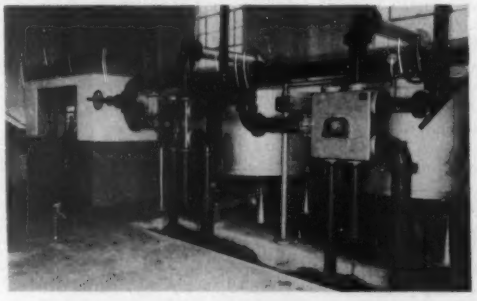
The next step was the supply of three zeolite softening units. These are of the pressure type, manufactured by the Cochrane Corporation, of Philadelphia. They operate under a pressure of 50 pounds per square inch. They are 96 inches in diameter, 6 feet high, and have a 24-inch zeolite bed. The zeolite is designed to remove approximately 13,000 ppm of hardness per cubic foot between regenerations.

The piping arrangement was designed to by-pass the raw water produced by the sodium zeolite softeners, and the water of 300-ppm hardness in the raw-water supply produces the finished water of 75-ppm hardness referred to previously.

The softened water is given a final treatment of Calgon to inhibit any tendency toward corrosion in the system, and chlorine by a Wallace and Tiernan chlorinator for final sterilization, before sending the water to the distribution system.

Sea-Water Regeneration

The Atlantic Ocean assists in softening the water when the sodium zeolite softening units have become exhausted and need regenerating. As is well known, the zeolite softens the water by exchanging the sodium in the zeolite for the calcium in the water. This leaves sodium carbonates in the water

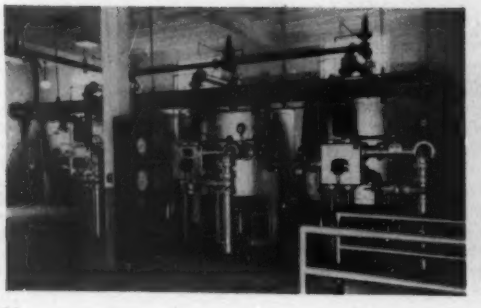


The three units at the left contain zeolite and soften the raw water, lowering the hardness to about 74 ppm.

Below, left, are two pressure filters that help clarify the sea water used in regenerating the spent zeolite.

PHOTOS COURTESY OF DEANE'S STUDIO, JACKSONVILLE BEACH

The softening plant is at the left in the photo below. The raw-water reservoir is at right, and the screened-tray aerator is in the center, adjoining the reservoir.



that remain in solution in the presence of the soap and thus allow the soap to perform its cleaning action. The calcium carbonates combine with the soap to form a precipitate that forms a hard film on the wash bowl or other areas. Thus, the zeolite becomes exhausted when the calcium in the raw water has removed all sodium from the zeolite.

To regenerate the zeolite, many plants use a brine that is flushed back through the beds. These react with the zeolite to exchange the calcium in the zeolite with the sodium in the brine. The waste brine carrying the removed calcium is customarily discharged to the sewer.

However, Smith and Gillespie have developed an alternate method used in various softening plants in this area. The Atlantic Ocean is a great source of brine that is free for the asking. The water carries roughly 25,000 ppm of dissolved sodium solids available for regenerating the zeolite.

Nevertheless, special precautions must be taken when drawing Atlantic Ocean water. Sea water carries dirt and other solids just as any other raw water does, and this, of course, must be removed.

Sea-Water Inlet

The first step in removing the solids was that of designing an appropriate inlet. The inlet has a 22-inch strainer that is buried in gravel below mean low tide. This strainer is piped to a sump where a pair of deep-well turbine pumps force the water through a pair of 42-inch high-capacity filters. A Wallace and Tiernan chlorinator provides sterilization of the sea water. When the pressure loss through the filters exceeds 10 pounds per square inch they are backwashed.

This sea water regenerates the zeolie by passage of 25 gallons of sea water per cubic foot of zeolite. Regeneration is automatic and is controlled on a volume basis. When the required volume has passed through the filters, regeneration immediately takes place. First step in the regeneration is backwashing, which requires about five minutes. The next is regeneration with seawater, which will require about 25 minutes. And the final step is rinsing with fresh water to remove the brine. This rinse takes about 25 minutes. Only one unit can be regenerated at a time.

The improvement was constructed under the administration of Mayor H. A. Prather and Mrs. Clare G. Swanson, City Manager.

400% Expansion in Philadelphia's Police Highway Patrol

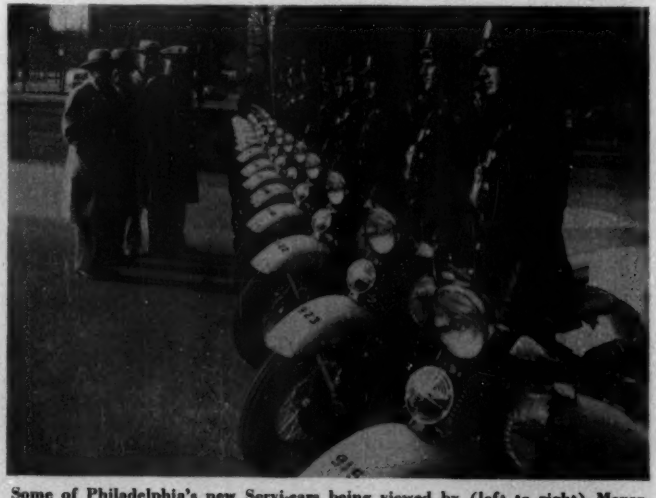
IN MARCH 1949, there were 40 policemen in the Philadelphia, Pa., Bureau of Police Highway Patrol. This unit has been constantly expanded to the present 200 officers. They are provided with the latest Harley-Davidson motorcycles, many of which are equipped with two-way radio. So efficiently has radio functioned that it has been proposed to install it on all cycles.

At present the Bureau of Police has a total of 154 motorcycles, consisting of 28 sidecars, 61 solo motorcycles, and 65 Servi-Cars. Of these, 27 of the solos, equipped with Motorola radios, were purchased in June 1950, and the 60 three-wheel Servi-Cars were recently delivered. All 60 will be equipped with Link-Vetric two-way radio. Thirty are assigned to the Highway Patrol for work in the central part of the city for enforcing parking regulations. The other 28 will operate under the supervision of the various police districts charged with strict enforcement of all parking and traffic regulations. Five Servi-Cars without radio, purchased in 1949, are used to enforce parking-meter regulations in the Germantown and Frankford areas.

This unit also has 20 of the latest 1951 model two-door Ford sedans, white with black fenders, and with the insignia "Highway Patrol" in black decal on both doors. They are equipped with a combination flashing red light and siren mounted on the roof. The sirens are supplied by the Sireno Co., 214 William St., N. Y. These cars are used around the clock in the outlying sections and are especially valuable in controlling speeders after midnight when the motorcycles are withdrawn from the streets.

The objective is to secure uniform traffic enforcement throughout the city, where formerly there was uniformity only in the central city area. Particular attention is given to double parking, parking on the driving side of one-way streets where signs are posted, time-limit parking control, parking too close to intersections, and other hazards. Sufficient attention will also be directed to moving violations. The new machines, all equipped with two-way radio, will augment the regular patrol cars in the district. The entire personnel has completed an in-training course in traffic enforcement at the police college.

About 20% of the police personnel is now assigned to the many fields of traffic control. In the past year and a half, traffic-control personnel has been doubled, so that now about 1,000 men are detailed to this duty, not including the officers assigned to school crossings.



Some of Philadelphia's new Servi-cars being viewed by (left to right) Mayor Bernard Samuel; Samuel H. Rosenberg, Director of Public Sofety; Howard M. MacBride, Superintendent of Motorized Maintenance, and Herbert J. Kitchenman, Assistant Superintendent of Police in charge of traffic control.

Haddonfield, N. J.

New Life for Old Streets

A two-inch resurfacing is expected to provide another quarter century of service for a rock-base pavement

By WALTER H. MACNAMARA, C.E.
Borough Engineer
Haddonfield, N. J.

ABOUT 25 YEARS AGO, Haddonfield, N. J., undertook a major street-construction program. Coincidentally, the program embraced 25 miles of streets. For the past few years, Haddonfield has had the obligation of resurfacing those 25 miles of streets so that they can serve for another quarter of a century.

Residential Paving, Arterial Traffic

In the 25 years since the pavement was built, the traffic habits of the community took a hand in deciding which streets would be strictly residential and which would be arterial. The result, of course, is the same as that found in many other cities. Many of the 6-inch slag-base streets became routes for buses and trucks and a substantial amount of through-truck traffic. However, they appeared able to do so without signs of strain.

On the surface, however, time had taken its customary toll. The surface was cracked; the asphalt had dried. The surface no longer protected the base from the intrusion of moisture and the subsequent weakening of the base and subbase. The alternatives facing the city were to tear out the old pavement and replace it with new, or to seal the old pavement with a strong wearing surface. The Commission of the Borough of Haddonfield chose the latter.

They made this choice because they still had faith in the subgrade, had positive evidence that the base was still sound. With another wearing surface of a quality superior to the old Bessonite, the streets should serve for another quarter of a century, with even better results.

Two-Inch Wearing Surface

The wearing surface selected is known by the New Jersey State Highway Department as FABC-1 and is a bituminous concrete. It consists of 47% sand, 42% crushed stone — well graded from ⅜ of an inch to ½ inch —4% rock filler and 7% asphalt cement.

Placing a new surface of substantial thickness requires care and attention to prevent losing the curb. Moreover, the people of Haddonfield have been meticulous in their practice of bringing roof leaders to the street instead of the sewer. Most of these have been brought to the street through buried lines that discharge through an opening in the curb. Thus, when the new surfacing was applied, it had to be laid so that these curb openings remained open. The streets were paved to a minimum grade of 0.4%. The inspectors carried a transit on the job at all times to maintain a proper grade, and gave special attention to intersections for drainage. Because of the many points requiring individual attention, hand-raking of the surface was specified. This type of application, we felt, also makes a more attractive surfacing, without the joints that are left by the customary paver.

The first step in the paving was to apply a tack coat of 0.15 gallons per square yard of OA-4. On this was then placed the FABC-1, which is a hot-mix pavement. The depth would vary at the gutter line from 1 to 2 inches. The controlling factor here would be the flow line of the outlet of the roof drains which come through the curb. At a distance of about 4 feet from the gutter, the paving would be increased to a thickness of 2 inches. As far as possible, we tried to get a 2-inch thickness of paving in all places but, owing to the conditions at the gutter, we couldn't always do so.

Normally, a 2-inch paving would give

The surface is badly deteriorated on this section of old pavement, but the base has held true to line and grade.

This is a good example of a resurfaced street. Special care had to be exercised to protect the gutter-line grade.

9 square yards to the ton. With the method we used, we averaged throughout the job approximately 11 to 12 square yards per ton. In our proposal for the work, we took bids on a tonnage basis. The bid as supplied by the contractor was to include the cost of furnishing all materials, labor, equipment, and the placing and rolling of the paving. After placing and raking the paving, the surfacing was then rolled four times. The rollers made two passes longitudinally and two horizontally with the pavement. Every batch of pavement that was delivered had to carry with it a certified weight slip. And even with this precaution, the inspectors frequently directed a load to a local scale for a spot check.

The present program started four years ago under the direction of Mayor F. Victor Westermaier, Public Works Commissioner Robert B. Chew, and Finance Commissioner Charles H. Evans. The cost has averaged $13.75 per ton or $1.15 per square yard in place. This cost is roughly a quarter of the cost of replacing the original pavement. It will be paid by bond issue that will be retired by the town through general taxes.

The pavement was resurfaced by Barrett Roads Corporation, of Lakehurst, N. J. H. Merrill Brittingham was resident engineer for the municipality.

New Billing System Collects More Taxes

By LEON B. MINER, *Auditor*
St. Joseph County
South Bend, Ind.

THE transfer from a private job to Auditor of St. Joseph County, Ind., landed me in the middle of a tax-accounting problem.

The office itself, in the Court House in South Bend, was something out of a bygone generation. The assessment and tax data referring to 200,000 citizens were kept in large volumes that could be used only by one person at a time. They were without any fire protection, subject to tampering and badly scrawled over.

Not only were delinquencies high, but they were mounting yearly. As arrears were not included in current bills, quite a number of residents had forgotten that they owed back taxes.

As an accountant acquainted with up-to-date business methods, I decided to install accounting machines and individual ledger sheets in trays that could be rolled to the machine for convenient use, as shown in the photograph. These unit ledgers contain all the taxpayer's data—description of property, complete assessments, and all the taxes due. They are a blessing to real-estate and abstract companies, since they show at a glance all changes in ownership. All the data, moreover, are now given on the bill. In writing the bills, the machine automatically provides the necessary controls for balancing the records daily and show the standing of any governmental taxing unit, municipality, or district in the county on any date. This is in contrast to the days when the Auditor's office fell weeks behind in balancing during heavy tax-payment periods.

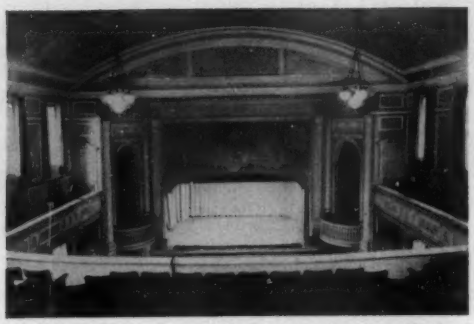
Two sets of cards control our bookkeeping of real-estate taxes. One set is housed in Kardex floor-model cabinets. These contain changes in ownership and valuation, and the records of taxes assessable against each parcel of property. When it is time to bill, we compute the amounts from charts. Then the floor cabinets are wheeled to the Remington Rand accounting machines. In preparing the bills, the machine also posts the taxpayer's ledgers, which constitute the second set of cards. These cards, or ledgers, are housed in Safe-Files, which provide the fire protection formerly missing. Balancing our posting to control accounts, maintained for a limited number of parcels, gives a double check on our work.

The same billing method is applied to personal-property taxes. The current assessed valuation is posted from personal-property schedules prepared each year by the local assessors. Here too, ledgers are kept in Safe-Files.

As a part of the installation service, the company prepared an instruction manual. This is useful as a refresher for a clerk who may get rusty between billing seasons. It will also acquaint our successors with the values of the system they have inherited. A measure of its value to taxpayers as well as our personnel is the fact that in the first year of operation the collection of delinquent taxes increased $95,538.08. The impressive gain in county revenue was the simple result of listing arears on current statements to property owners.

Floor-model Kardex cabinets bring the unit tax records directly to the Remington Rand tax-accounting machines, on which the individual bills are prepared.

Memorial Community House, Spring Lake, N. J.



Auditorium, Ivy Tower Playhouse, Spring Lake, N. J.

The Summer Theatre— Civic and Economic Asset

A growing movement of financial and cultural importance to small communities

SIXTY years ago there was one summer theatre in America. In 1950, the *Blueprint for Summer Theatres** was able to list more than 300 such playhouses in 33 states.

Here is a movement that merits the cooperation and encouragement of municipal officials and citizens' organizations, especially in small cities and towns which can benefit financially and socially by becoming cultural centers for the regions in which they are located.

Last summer one of THE AMERICAN CITY's editors visited twelve of these playhouses, and gathered the photographs here reproduced. He also interviewed several of the producers, managers, and press representatives. On the data thus secured this article is based.

Three Inherent Values

A careful analysis of the cultural, professional, and economic values inherent in the summer-theatre movement has been made for THE AMERICAN CITY by Rea J. Powers, producer at the Ivy Tower Playhouse, Spring Lake, N. J.

The presence of a summer theatre in a community [Mr. Powers points out] tends to round out to completion the attractions offered by a seashore or lakeside resort. It provides entertainment, amusement, and novelty to the summer vacationer; and to the year-round resident it brings the theatre's cultural benefits to many who cannot avail themselves of Broadway.

From a professional aspect, the summer theatre affords to actors the means to further intensive training, to improve their techniques, and to be seen by agents and producers in parts which may lead to greater professional recognition of their talent. To the new author, it gives the chance of having his creation tried out by competent directors and actors—with the final critic, the audience, either condemning or approving his work. To the proven author the summer theatre represents the field in which he may present new plays and developments of techniques, corrections of previous scripts, etc. To both it also affords the opportunity for the eventual move to Broadway or Hollywood production. Similar opportunities are the award of the set designers, directors, technicians, etc.

Financially, (a) the summer theatre gives employment to the many people en-

* Compiled and edited under the auspices of the American National Theatre and Academy.

Berkshire Playhouse, Stockbridge, Mass.

Pocono Playhouse, Mountainhome, Pa.

Town Hall and Auditorium, Clinton, Conn.

Cecilwood Theatre, Fishkill, N. Y.

gaged in the diverse work of the theatre; (b) it aids the community both by direct business stimulus and indirectly from many bilateral tangents.

Mr. Powers estimates that a theatrical company consisting of 25 persons will produce a local business increase of $815 per week from their personal expenditures; and that an additional $350 per week will be spent in the community for janitorial services, trucking, lumber, paint, lights, advertising, rent, ushers, printing, etc.; plus over $200 per week for tailoring service, barber and hairdresser, newspapers, extra snacks, drinks, stockings, handkerchiefs, laces, ties, toilet articles, stationery, etc.

This adds up, in round figures, to some $1,400 per week—or, for an 11-weeks' season, a stimulus to the community's local business of over $15,000 per season, through the presence of a summer theatre in its midst.

But [says Mr. Powers] the largest item is intangible: this represents the audience—the people who make theatre. In the majority of cases, people will wine and dine either before or after the theatre. This will be done either in their own homes or in the public places; both, however, represent an increase in buying above the usual and are directly caused by the presence of theatre in the town.

Similarly, most people buy candies for the theatre. Most of them travel by bus, which requires a fare, or by car, which requires gas and oil consumption. After-the-theatre refreshments may run anywhere from a soda to a full meal with all the trimmings or liquid refreshments. Since many of the people come from a distance, their patronizing the local man is due directly to his proximity to the theatre. Let us set a minimum of $1—a very low figure. Taking a 400-seat theatre and assuming only a two-thirds attendance, we arrive at $1,596 a week, or the barest minimum of $15,960 for the season.

Combining our figures, we see that local business receives a stimulus of approximately $30,000 in a short, ten-week season.

The community further benefits from constant, newsworthy, and colorful publicity on a county, state, and in some cases national level. This too may serve to make people more aware of the location and may lead them to vacation there.

From the Pocono Playhouse

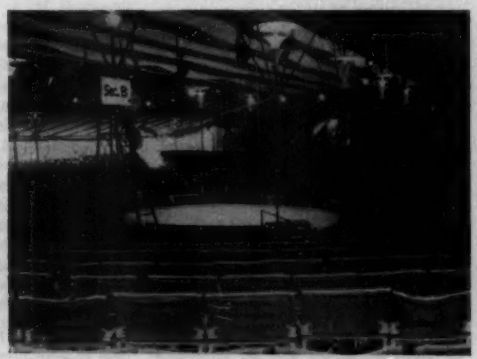
A similar analysis of community benefits comes to THE AMERICAN CITY from Dixie Lee, press representative of the Pocono Playhouse, of which Rowena Stevens is producer-manager, in the small village of Mountainhome, Pa.

The Pocono Playhouse [says Miss Lee] is the only legitimate theatre in Monroe County. Located as it is in the heart of the Pocono Mountains resort center, it is serving as a magnet for the many thousands who not only want to enjoy a relaxing holiday, but also have the added pleasure of metropolitan entertainment. Up to the time the theatre was established, Mountainhome was just one of the quiet small summer resorts scattered along the mountain trails.

The vast amount of publicity in promoting the Playhouse in the larger cities of Pennsylvania, including Philadelphia, and in New York City, has helped greatly to make Mountainhome a community of noticeable importance. As a result, merchants in the vicinity are benefiting through the increased purchasing by the additional summer population; grocery and mercantile stores have enlarged their premises, and the restaurants and inns in the locality have increased their business by serving the large groups of patrons coming from Scranton, Wilkes-Barre, and other distant localities, who stop on their way to the theatre for dinner or go for refreshments afterwards.

New cabins and motels have been erected during the past year. Local inns and guest

Bucks County Playhouse, New Hope, Pa.



North Shore Music Theatre, Highland Park, Ill.

houses are increasing their incomes through housing the Playhouse stock company, who spend at least a third of their salary in the many shops and restaurants.

The operation of the theatre alone means thousands of dollars spent in the locality for supplies, properties, posters, and other necessary requirements. Taxi and bus transportation have been benefited; gas stations and garages are also coming in for their share of increased profits.

It has meant extra employment to road builders in the community in the laying of new roads in the vicinity and the widening and repairing of others.

Theatre Doubles as Cinema

Benefits to Fishkill, N. Y., from its playhouse are summarized by Joseph S. Stevens, who, with H. A. Griswold, presents the Dutchess Players at W. C. Gage's Cecilwood Theatre there.

Fishkill [writes Mr. Stevens] is a growing community of new homes. A staid old village for many years, it is fast becoming a residential district for people working at the Texas Company laboratories in Beacon, and at the I. B. M. plant in Poughkeepsie. Fishkill is four miles from Beacon and only 10 miles from the I.B.M. plant, so that it is within very easy commuting distance of both. More than 200 new homes in the $10,000 to $15,000 class have been built within the past two years. More are under construction and many more are planned.

The theatre serves this group, as well as people from the surrounding territories, as a motion-picture theatre during 10 months of the year; it widens its area of usefulness in July and August, when it presents a 9-week season of stage plays. It is the only so-called straw-hatter that we know of which presents plays for five days per week (Tuesday through Saturday) and motion pictures on Sunday and Monday. For plays it draws its audiences from Poughkeepsie, Newburgh, Beacon, Peekskill, and the intermediate towns.

During the play season many of the actors appear on the local Poughkeepsie, Newburgh, and Peekskill radio stations.

The theatre leases a large adjoining home where it provides room and board for the technical crew and the apprentices or students with the company. The actors usually room and board in the local hotels and boarding houses.

The theatre was built by W. Cecil Gage, a resident of the village for more than 30 years, whose hobby has been the theatre. It is the fulfillment of a lifelong ambition.

The story leading up to the present activities of the operators of Mr. Gage's Cecilwood Theatre is told to THE AMERICAN CITY by Robert Breen, executive secretary of the American National Theatre and Academy:

Mr. Stevens and Mr. Griswold came to the ANTA office in New York to seek our aid in helping them to set up a summer theatre, as they had no previous experience in legitimate theatre. We asked them if they would like to consider a professional theatre group which had been working together. They agreed and we introduced them to Fred Stewart, producer for the Six O'Clock Theatre. In a very short time arrangements were worked out between the Six O'Clock Theatre and the Fishkill people. It now seems to be a permanent arrangement and, after two successful summers, both parties are extremely pleased. It is quite possible that, using Fishkill as a summer base, the Six O'Clock Theatre will eventually start a series of winter tours.

FOR HELPFUL SUGGESTIONS toward the establishing or the strengthening of a local summer theater, *The American City* suggests that municipal officials and civic organizations apply to The American National Theatre and Academy, 139 West 44th St., New York 18, N. Y.

A Report from the Bucks County Playhouse

Recognized by actors, directors, and playgoers as one of the best of the straw-hat theatres is the Bucks County Playhouse, situated in New Hope, on the banks of the Delaware River, one of the most picturesque spots in Pennsylvania.

Originally a grain mill built in Revolutionary days, the structure was converted in 1939 by a group of civic-minded New Hope residents into a small theatre. In 1940 Theron Bamberger, a New York play producer ("Tomorrow the World," "Fly Away Home," etc.) was invited to operate the playhouse. It was enlarged to hold some 400 seats. It is unusually well equipped with a sound system, a revolving stage, and modern lighting equipment, and yet it retains its old charm.

In the 10 years of Mr. Bamberger's management, the Bucks County Playhouse has become a center of culture in the district, and a source of financial benefit to the immediate as well as near-by communities. Fifteen plays are presented in as many weeks, starting early in June and running through the middle of September. A resident company of exceptionally talented Broadway actors is occasionally augmented by visiting stars. However, Mr. Bamberger tries to avoid using the "package-play" system and has succeeded in his efforts to present interesting plays of merit with fine actors, rather than productions that get by because of the drawing power of a popular name, or a motion picture personality.

Nearly a third of the audience each week [says Phyllis Perlman, press representative] are subscribers who attend regularly. They come from Philadelphia, Easton, Allentown, Bethlehem, Doylestown, Trenton, and from country districts within a radius of more than 60 miles. Of course, the local New Hopeians are ardent playgoers by this time, many of them declaring that they no longer go to the big cities to see plays, preferring to wait until Mr. Bamberger presents them at the Playhouse.

These people have the opportunity — and many of them take advantage of it — of seeing all 15 plays in the four months the theatre operates. This is almost twice the number of plays the average metropolitan theatre-goer sees in a whole year.

Stockbridge's Famous Berkshire Playhouse

The Berkshire Playhouse, at Stockbridge, Mass., first opened its doors in 1928 and, with the exception of the four war years — 1942-1945 — has been in operation each summer with a season that has now been extended from nine to twelve weeks. In 1935, William Miles, the present director, assumed management of the theatre. Previous to that time each year had shown a deficit. Under the Miles regime there has never been a losing season, and in 1950 he is reported to have turned people away at almost every performance. The Berkshire Playhouse, which was designed by Stanford White as the Stockbridge Casino, seats 432, and Mr. Miles' lament is "If I only had 200 more seats!"

Director Miles maintains a resident company of experienced actors that can hold its own in drawing power with a star.

The Drama School, run in connection with the Berkshire Playhouse, is under the direction of Maria Hershman-Horch, who, prior to coming to America was a member of Max Reinhardt's famous company.

Mary Ward and Fred Reese Wagner are press representatives.

A Theatre in a Town Hall

A distinctive feature of the summer theatre in Clinton, Conn., is the fact that its playhouse is the auditorium of the William Stanton Andrews Memorial — a fine building which serves as Clinton's town hall. As shown in the accompanying photograph, the auditorium is flanked with the town offices on one side, and the police- and fire-department headquarters on the other.

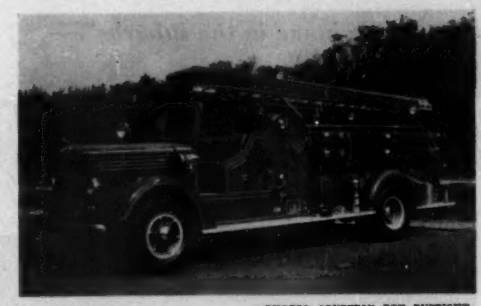
Music Circus— Theatre-in-the-Round

A recent development in the straw-hat circuit is the big-tent, arena type of theatre, boasting a stage centrally located so that audiences can be seated around in a circle. Cape Cod and the South Shore of Massachusetts will have two tent musical theatres this year— the Cape Cod Music Circus in Hyannis, inaugurated last year, and the new South Shore Music Circus in Cohasset, which will open its season on the 25th of

(*Continued on page* 169)

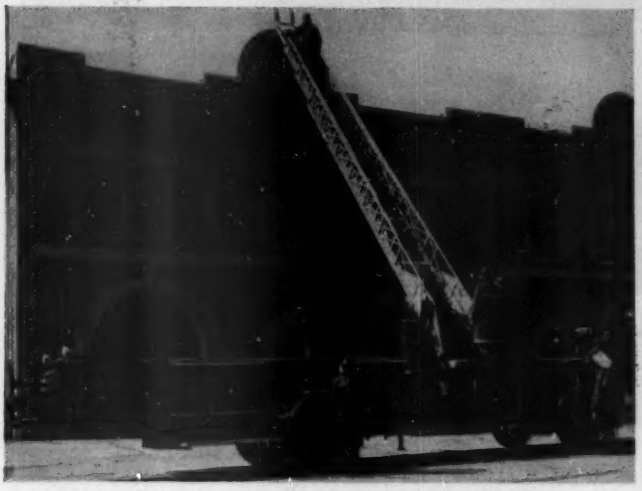
30% Fewer Fire Alarms

ascribed by Hammond, Ind., to skilled inspections; other features are efficient rescues, good working conditions



PHOTOS COURTESY ROY RUBRIGHT CITY ENGINEER, HAMMOND, IND.

Mack truck at one of the outlying stations has 500-gallon water tank and gas-engine-driven pump capable of producing 300 pounds' pressure. With a water fog nozzle, it puts out almost all residential fires without hydrant.



American-LaFrance aerial-ladder truck is equipped with smoke ejector and life-evacuator equipment. In addition to the 100-foot aerial, which is hydraulically controlled, there are 209 feet of hand ladders.

By EDWARD J. SPOLNIK
Secretary, Hammond Fire Dept.
Hammond, Ind.

THE Hammond, Ind., Fire Department is notable for its progressive activities, practical results, and excellent working conditions—all brought about by Chief A. J. "Del" Sargent.

Our working conditions compare with the best in the country, public or private. Ordinary firemen, of whom there are 58, receive $3,600 a year, three weeks' vacation with pay, indefinite sick leave, $100 a year clothing allowance, a 72-hour work week, and pension.

Our 1949 fire loss of $123,119 was the lowest in the history of this city.

Two outstanding activities are our Fire Prevention Bureau and our ambulance department. Five or six years ago we had no fire inspectors; now we have three, and to their energy we ascribe a good part of the satisfactory fire-loss record achieved by the department. In the last two years, fire alarms have decreased 30% in number due largely to their work.

During the last year our ambulance service has answered an average of two calls a day, and many lives have been saved by the inhalators. We have two special first-aid chauffeurs on the DeSoto ambulance: Max Chayken and James Moore. These men are especially trained for this work, and they have been commended for their efficiency.

Fire Fighting

Two modern ideas have proved particularly successful in operation here, and we believe that every department should adopt them. The first is the use of Super Vacuum smoke ejectors. A year ago we purchased three, and we rate their value at 100 times their cost. Also a year ago we purchased a large quantity of Unox wet water agent. With it we have extinguished many large fires by means of a booster and without resort to 2½-inch lines.

The 15 pieces of apparatus are listed by location. Within a year or two we shall install two new 1,000-gallon pumping engines, a service ladder truck, and an ambulance. Fire alarms come in by way of our up-to-date Gamewell system and a new five-trunk switchboard, with two of the trunk lines for fire calls only. We recently installed what we regard as the best public-address system in the country. Planned by Chief Sargent, it was built by the Stromberg-Carlson Company, of Chicago. We have also an intercommunication system in three stations.

Personnel comprises the chief, two assistant chiefs, secretary, 10 captains, 10 lieutenants, 22 chauffeurs, and 58 privates. Two of them have special records of service with the department: Assistant Chief William Tamm, 36 years, and Operator William Volkmann, 41 years.

Motor Equipment in Hammond's Six Fire Houses

No. 1 Fire Station

No. 1 Squad Truck (Mack) 1942
No. 1 Engine (American LaFrance) 1926
No. 1 100-foot Aerial Ladder Truck (American LaFrance) 1949
No. 1 Carbon Dioxide Truck (International) 1943

No. 2 Fire Station

No. 2 Engine (Mack) 1947
85-foot Aerial Truck (Reserve—American LaFrance) 1930
750-gallon Pumper (Ahrens-Fox—Reserve) 1925

No. 3 Fire Station

No. 3 Engine (Seagrave) 1930
Ambulance (De Soto) 1942
Service Truck (Ford) 1948

No. 4 Fire Station

No. 4 Engine (Seagrave) 1930
No. 2 Ladder Truck (American LaFrance) 1930

No. 5 Fire Station

No. 5 Engine (Seagrave) 1930

No. 6 Fire Station

No. 6 Engine (Mack) 1947.

Not just "a home in the suburbs"—

Cedar Hills

a new town near Portland, Ore.

This is a general airview, made late in 1950, of Cedar Hills—a new suburban town five and one-half miles east of downtown Portland, Ore. Rental apartments are at lower left, single-family dwellings at upper right.

By HARRY D. FREEMAN
Consulting City Planner
Portland, Ore.

THE rise of Cedar Hills within the metropolitan area of Portland was a typically natural result of the times and local conditions. The new community will have a population of about 12,000 persons when complete, but it is not "self-contained" and therefore, may not be defined as a true satellite town. Family incomes will be earned largely in the parent city of Portland. No industries will be established in Cedar Hills.

Single-family homes have ranged in price from about $7,000 to $15,000, thus generally indicating families with annual incomes of about $3,000, say, to $7,500 and over. For a small part of the population, a district has been set aside for two-acre sites * where homes have ranged from $25,000 to $56,000. There are now 550 single-family homes and 100 rental apartments in the town. The central business district is in the over-all planning stage in anticipation of an adequate volume of resident buying power.

Mr. Harry Hawkins, President of Commonwealth, Inc.,† the original sponsors, was inspired by Sir Ebenezer Howard's garden-city theory before the initial planning of Cedar Hills was authorized. Mr. Hawkins visioned a new town properly fitted into the metropolitan pattern as opposed to the old idea of just "a home in the suburbs." There was no master plan of Portland and environs to serve as a planning guide, and no subdivision or planning regulations save the statutory requirement that new plats for record must bear the approving signature of the local planning body, if one exists. There were no subdivision rules containing minimum lot sizes, street widths, or site improvements. Site planning and regional considerations were left to the planner.

Community Production

Increasingly, we find examples of large-scale community production on open land in the environs of cities in contrast to new subdivisions with lots for sale. The modern family is not satisfied with less than "the complete home package," which today must include all factors necessary for a full community life; that is, adequate transportation, recreation, schools, commercial areas, public safety, all site improvements, and neighborhood amenities. Successful building of homes requires larger operations, in most cases, with broad planning, heavy financial programming and other careful guidance over a long period of time. To this end the developers carefully selected and acquired 783 acres about 5½ miles from downtown Portland and lying in the Tualatin Valley just west of the range of hills that mark the westerly limits of Portland proper. The site is accessible by two passes through the hills: (1) by way of Jefferson Street — Sunset Highway and (2) by way of Burnside Street — Barnes Road. Cross-county, or north-and-south access, is provided from the town of Beaverton and other points by Cedar Hills Boulevard.

Following preliminary conferences with the City Planning Commission, the State Highway Department, and the State Board of Health, preliminary sketches were prepared. The end result is shown on the accompanying general plan, which was approved in preliminary form by all agencies concerned. Location of key features of the plan perhaps will appear to be obvious. The central business district, for example, is located at the major access point off Sunset Highway. Its area of some 25 acres, and its shape, are influenced strongly by topography. It is believed that 25 acres will be adequate for the business center, with its automobile parking of at least a 2-to-1 ratio and other requirements. Architectural studies leading to an over-all plan for the business center are under way.

The site lends itself to a belt of multi-

* The plan on the next page has since been amended to include some 56 two-acre sites in the wooded area, upper left of center in the air photograph.

† The present operating corporation is called The Cedar Hills Company.

family rental dwellings between the business area and the rolling residential topography beyond. A community center is proposed in the geographic center of the project. Two elementary schools (adequate for the anticipated 12,000 population), are proposed for the interiors of residential areas. A high-school site is also proposed. Neighborhood recreation was planned in connection with the school plant.

The areas designed for various land uses are as follows:

	Acres	%
Total Area of Site (Exclusive of Johnson Tract)	783.97	100.0
Residential Area (1,706 lots or 3.7 per net acre)	489.67	62.4
Group Housing Area (Rental Housing)	45.3	5.8
Commercial Area (Includes auto parking space)	24.6	3.1
Recreation, Schools & Other Open Space	76.2	9.7
High School & Playfield	19.3	
Elementary Schools & Neighborhood Parks	17.0	
Open Space in Business Center	11.6	
Reserved Area for Recreation and Utilities	17.0	
Churches and other Community Services	6.0	
Public Buildings	5.3	
Streets and Parkways (to be dedicated) (Allow 15 acres for streets now dedicated. 163.2 minus 15=148.2 acres).	148.2	18.9
Total	783.97	100.0%

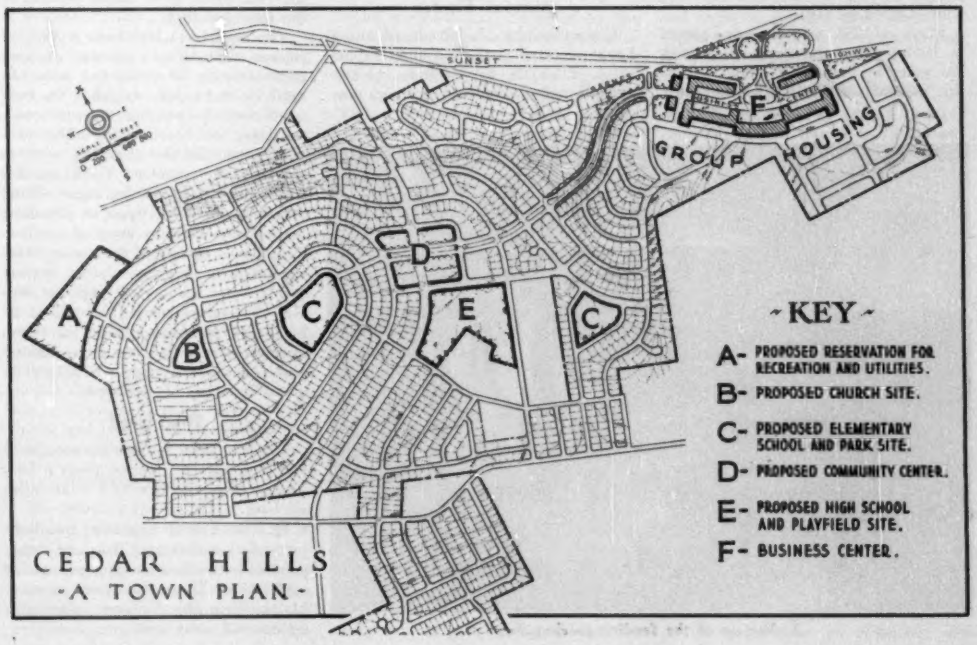
The construction program was not an easy one. Even with savings produced by economical design, the cost of site improvements has amounted to around $24 per front foot of residential lots, including original land costs. Before a house could be sold, the complete sewage-treatment plant had to be built with sewers adequate for initial building programs. The water system, street surfacing, and other items added their burden. With respect to the home market in 1946, the developers faced the prospect of a down-hill grade with an up-hill pull. But 550 houses have been produced and sold and the new families of the community have felt and acted at home. Garden clubs, and other spontaneous evidences of normal and happy community life, have appeared. All property owners are members of the Homes Association of Cedar Hills, for which the articles of incorporation were filed in 1946.

The Lot-Width Problem

Mr. Hawkins insisted in the beginning that residential building sites should be about twice the size of city lots in Portland, where 50 by 100 feet has been the standard since the first plat was filed in the middle of the 19th century by some frugal New Englanders. After conferences with staff members of Commonwealth, Inc., and others, it was decided that an 85-foot width would accommodate the modern trend in dwelling design and that a 120-foot depth would not be too much for a desirable degree of maintenance which, in the Portland area, is generally done by the family itself. However, some 250 lots with a 65-foot width and 120-foot depth were provided in the southerly portion of the project in an effort to offer lower-cost homes to veterans. Even with the 85-foot width, casual observers sometimes ask why the houses are "so close together"! The cold fact is that the 85-foot frontage caused no little anxiety among staff members when original estimates of the total costs of homes in the project were computed.

On the aesthetics side, architectural control has been maintained by not selling vacant lots for building or speculation. The developers either built the houses or contracted with various local house builders who were subject to architectural supervision. The developers will also own, build, and operate the central business district. Pole lines will be on rear lot-line easements. The question of going underground with all wiring was explored, but such work was too expensive.

In early planning stages the matter of protecting the borders of the project was studied. Obviously, it was financially impossible to provide wide protective green belts around the new town; however, the 240-foot right-of-way for Sunset Highway on the north, and the topographic character of land in other directions, will aid in maintaining the quality of wholeness of the town around its edges.



Copper-Sulphate Treatment—That Works

Copper sulphate, sprayed on Skaneateles Lake, takes care of objectionable tastes and odors caused by algae.

Syracuse, N. Y., develops feeding method that kills algae but does not bother fish life

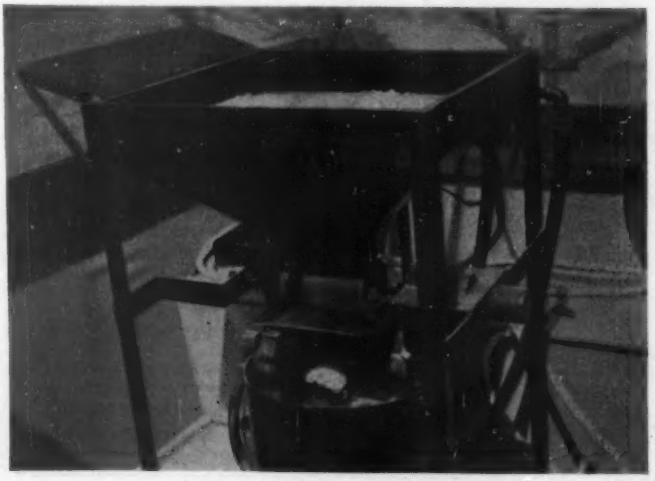
By ELON P. STEWART
Division Engineer of Water
Syracuse, N. Y.

SYRACUSE has been treating Skaneateles Lake, the source of its water supply, with copper sulphate crystals since 1926 in order to eliminate objectionable tastes and odors caused by algae.

Prior to 1938, crystals were placed in burlap bags and dragged through the water by motorboat. Objections to this method were raised by fishermen, who claimed that small fish were killed in the areas where the copper sulphate was in concentrated solution. This prompted the development of our present treatment, a description of which follows. We designed it to reduce the concentration enough to eliminate, or at least alleviate, this danger.

Special Feeder

Copper sulphate is introduced into a hopper located at the top of the apparatus. From the hopper it is fed into a small tank or dissolving chamber over an electrically rotated drum. By varying the speed of rotation, the number of pounds of copper sulphate fed per minute can be regulated. The motor for operating the drum is supplied with energy from the storage battery of the boat in which the equipment is installed.



A close-up of the feeding mechanism.

Water Taken by Low-Head Centrifugal Pump

Water is taken from the lake by means of a low-head centrifugal pump, driven directly from the motorboat engine. It passes through the copper sulphate crystals and dissolves them, forming a concentrated solution. The solution is conveyed by a high-pressure gear pump from the bottom of the dissolving chamber, through hose, to the spray nozzles, which are located on outriggers attached to the stern of the boat. As both the low-pressure and the high-pressure pumps are driven directly by the motorboat engine, there is a fixed relation between the speed of the boat and the rate of pumping. This fact, coupled with the variable speed of the feed drum, gives ample control of the rate of dosage.

This equipment lays down a spray of copper sulphate solution over an area approximately 40 to 50 feet wide. In applying the copper sulphate, the boat is directed in parallel courses across the lake, the direction depending to a great extent on the prevailing wind at the time of treatment. These parallel courses are about 700 feet apart. Wind action is depended upon to distribute the solution between areas of application. We estimate that the greatest concentration of copper sulphate at any point in the lake is one part per million. The entire lake is about 15 miles long with an average width of three-quarters of a mile. It can be treated with 11 tons of copper sulphate in about 16 hours of operation.

Boat Used

The boat used for this purpose is 25 feet long with a beam of about 8 feet. The speed of the boat is 8 to 10 miles an hour.

This method of treatment has been found very satisfactory from the standpoint of both efficiency and evenness of application. There have been no complaints from the fishermen since this method has been used.

By NORMAN WILLIAMS, Jr.
Acting Director
Division of Planning
New York City Department of City Planning

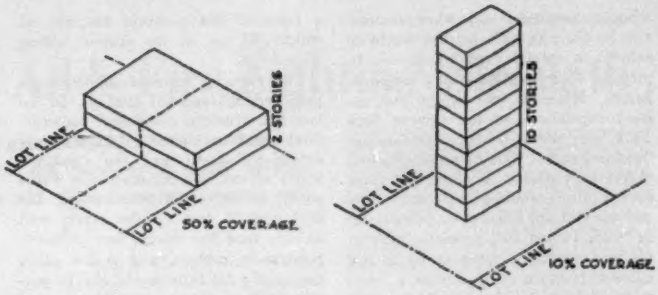


Diagram showing Floor Area Ratio concept. A lot with F.A.R. of 1 can accommodate a 2-story building covering 50% of the lot, or a 10-story one covering 10% of the lot.

Striking Innovations in New York City's Proposed Rezoning

ON APRIL 30th the report of the Plan for Rezoning New York was released to the public by the New York City Planning Commission. The report includes the text of a proposed general amendment of the New York City zoning resolution, together with proposed new zoning maps for the city and explanatory text, pictures, and maps. In authorizing publication of the report, the Planning Commission and the Board of Estimate indicated that they were taking no position either for or against the proposals made therein. After a period of several months for public study and discussion, it is expected that public hearings will be held in the fall.

The proposals are the result of more than two years' work by the consulting firm of Harrison, Ballard and Allen. The consultants' surveys included estimates of the need for floor space for both residence and employment in the city in 1970, a review of current trends in residential, commercial, and manufacturing development, analysis of most building permits issued in the city in 1948, preparation of maps showing the present use of every piece of land in the city, analysis of non-conforming uses in residential areas, review of some 50 recent zoning ordinances, extensive architectural testing of the proposed bulk controls, and many other studies. During the preparation of new zoning maps, the proposals were constantly reviewed and modified in the light of existing conditions.

Striking Innovations

The form of the proposed amended resolution includes several striking innovations. All the use and bulk regulations applying in the several districts are set forth in a series of eleven tables, either directly or by cross-reference. All permitted uses of land and buildings are classified into 18 groups, on the basis of their functional inter-relationships, their environmental needs, and their compatibility; and the tables indicate which of these groups would be permitted in each district. An index is provided to show a prospective developer quickly where a store, a garage, or any other given establishment may be located. So far as possible, the proposed resolution is written in simple language, without long legalistic sentences. A number of sketches are included to clarify the text.

Flexibility Provided

The proposals are described by the consultants as a thorough-going revision of the existing law in order to bring zoning controls up to date—and, so far as possible, to keep them there. While it is recognized that the original 1916 New York zoning resolution was a brilliant innovation to handle the most important problems of that time, new problems have developed since, primarily as a result of technological changes. For example, nearly half of recent residential construction in the city has been in large-scale developments including several blocks or more; and in these the traditional yard, court, and height controls are an irrelevant nuisance. The phenomenal increase in automotive and air traffic has created a number of problems affecting the use of land. The new, attractively landscaped laboratories and light manufacturing plants are often appropriate in outer residential areas. Architectural design has been changing rapidly.

The proposed new zoning regulations have, of course, been adapted to these and other current trends, but a further step has been taken in attempting so far as possible to provide controls which will adapt themselves automatically to future technological changes. In particular, the proposed bulk regulations would provide direct control over those things with which bulk zoning is ultimately concerned—total floor space and the degree of congestion, access to light and air, and open space. Therefore, in contrast to the old zoning envelope which generally dictated the exact size and shape of the largest permitted buildings, the proposed new regulations would generally provide considerable flexibility in design and site planning—and permit a variety of possible building forms, present or future, provided that they conform to specified standards on over-all density and on light, air, and open space.

The proposed bulk regulations may be summarized briefly.

The Floor Area Ratio

● First, in order to provide over-all control over the size of buildings and so over the resulting congestion, the regulations for each district would specify the maximum Floor Area Ratio (FAR)—a formula which regulates the maximum amount of floor space on any lot in terms of a mukiple of the area of the lot. To take care of the great variety of conditions in New York City, the proposed FARs range from 0.5 in the outer residential areas to 10 in the Park Avenue residential area and 15 in the highest-bulk commercial and manufacturing areas, around Wall Street and Grand Central Terminal and in the garment district.

Light and Air

● Second, in order to ensure that light and air may get to windows, a series of controls over the location of building walls is proposed. Rear yards would be generally required, except within large-scale projects. In low-density residential districts front yards and side yards would also be required; and

schools, hospitals, and other community facilities in such districts would be subject to special yard regulations, to prevent their overshadowing adjacent homes. Moreover, the height and setback regulations of the present New York law—which produce the familiar "wedding-cake" style of architecture—would be modified to encourage more towers, which would provide more light and air and are often more economical to build. In addition, present court regulations would be replaced by a new control designed to guarantee a minimum amount of light and air for each legally required window.

Usable Open Space

● Third, specified amounts of usable open space would be required along with all new residential construction. Such space would be required to have a stated minimum dimension (ranging from 18 to 30 feet), and could be used for recreational space, greenery, outdoor drying yards, etc.—but not for driveways or open parking areas. In the inner areas balconies and roof space could be substituted for required usable open space under certain conditions.

38 Districts Proposed

The proposed districts may be divided into four general categories—Residence Districts, Districts Associated with Residence, Commercial Districts, and Manufacturing Districts. Thirty-eight districts are proposed. In contrast, the use, height, and area regulations of the present resolution provide a total of 864 possible districts, of which 184 are on the present zoning maps.

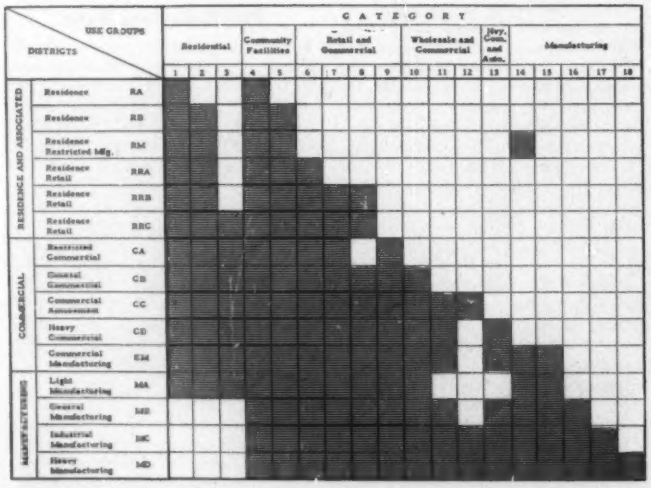
Two types of residence districts are proposed, RA and RB districts. In the two RA districts, residential construction would be limited to single-family detached houses; and the combined width of the two required side yards would be set at 20 feet for one district and 13 feet for the other, with no side yard less than 5 feet. Schools, community centers, and a few other community facilities would also be permitted. These districts would be mapped only where single-family restrictions are now in effect. In contrast, the seven RB districts (with FARs of .5, .8, 1.4, 2.4, 3.5, 5, and 10) would permit any type of residential construction, subject to the FAR and other bulk controls, in order to encourage freedom of design and site planning and to permit the development of diversified neighborhoods. Hospitals, libraries, and most other community facilities would also be permitted in RB districts.

Thirty-foot rear yards would be required in all residence districts, and off-street parking spaces would be required for all new residential construction, except on small lots in the central areas. All objectionable non-conforming factories, open uses of land, and signs would be required to be removed from residence districts after an appropriate period for amortization, varying from 30 years for the first to 3 years for the latter two.

Districts associated with residence include two types of districts, RM and Residence Retail. RM districts would be mapped in selected locations in the extreme outer parts of the city, to permit landscaped offices, laboratories, and light manufacturing plants, such as the Bulova Watch factory, recently authorized under analogous provisions of the present zoning law. The three Residence Retail Districts would permit local shops on the ground floor, either in one-story buildings or below residences; and the bulk regulations for these districts would be generally taken from the residence district within which they are mapped.

Except in the central area, two of these districts would be mapped in concentrated clusters in the best shopping locations, and a depth of 150 feet would be provided to give sufficient room for modern retailing and off-street parking areas. Such parking spaces would be widely required, except for the central areas and for small shops generally. One of these two districts (RRA) would be limited primarily to groceries, drug stores, and similar establishments used for daily shopping, in order to provide the maximum restrictions on non-residential development to the outer residential areas of Queens, East Bronx, and Staten Island. The other of the two (RRC) would permit a wider range of shopping establishments.

In the long ribbons formerly zoned for business along most major streets, those areas which are residential or vacant would be generally rezoned for residence; and the frontage along such streets where scattered shops have developed would be placed in a special Residence Retail District (RRB), where the size of future shops would be limited to 2,000 square feet.



This is a diagram, reproduced from the rezoning report, showing flexibility afforded by the use-grouping device. Blank squares mean that certain groups of uses have been omitted from certain districts for specific reasons. For example: Use Group 3 (Hotels) is not permitted either in Residential, Residential A and B, or in General, Industrial, or Heavy Manufacturing Districts.

Commercial District Types

Five types of Commercial Districts are proposed to deal with the wide variety of conditions in New York's commercial areas:

● First, four Restricted Commercial (CA) Districts with very high bulk (with FARs of 10 and 15) are proposed for the city's best office and retail areas, especially in mid-town and downtown Manhattan; and theaters, arenas and auditoriums, and wholesale and storage establishments would not be permitted in these areas. Even these regulations represent a cut in permitted bulk from some of the largest existing buildings: the Empire State Building has a floor-area ratio of 25, Macy's of 16, and Rockefeller Center (as a whole) of 12.

● Second, six General Commercial (CB) Districts, with a wide range of bulk (with FARs from 1 to 10), would include many concentrated commercial centers in the outer areas (which would

(*Continued on page* 167)

LACONIA, N. H.

Water System Adds Fire-Fighting Strength

More elevated storage, larger mains, more hydrants reduce pipe-friction losses 60 per cent and make the system able to meet all fire-service demands

By THEODORE L. CATE
Laconia Water Company
Laconia, N. H.

THREE BAD FIRES, resulting in almost total loss, supplied the impetus for water improvements in Laconia. Actually, one can assign only a small part of the responsibility to the lack of a sufficient volume of water. Nevertheless, the water company received severe criticism in all cases.

The first result was a request by the city for a survey of the water-distribution system and a check on the volume of water available at strategic locations. The appeal went to the Public Service Commission, which responded by assigning one of its engineers, Lawrence J. Riis, to make the study. In addition, the New Hampshire Board of Fire Underwriters also assigned an engineer, Fred H. Krauss, to make certain flow tests to determine available water. These tests showed that the volume was somewhat below the New Hampshire Board of Fire Underwriters' requirements in 11 out of 14 locations. It asks for a flow ranging from roughly 1,000 gpm in residential areas to 3,750 gpm in the business areas, all at 20 psi.

The next result was a directive by the Public Service Commission to our company to obtain competent engineering advice in order to strengthen the distribution system. We responded by retaining Metcalf and Eddy of Boston. We found it most interesting to see how closely this firm's recommendations paralleled those of the Public Service Commission and the New Hampshire Board of Fire Underwriters.

The first, principal recommendation was that we erect a 500,000-gallon elevated storage tank at the highest practical elevation near the business section. This tank is now on order from the Pittsburgh-Des Moines Steel Company. Its high-water mark is 2½ feet lower than the level of our Lakeport reservoir, located about 2½ miles from the business district. This difference will compensate for pipe friction. The tank will be equipped with altitude and check valves and will give us 500,000 gallons to supplement the flow from our reservoir.

The next important recommendation was that of strengthening the system itself. A loop of 12-inch, cement-lined, cast iron pipe will feed from the new elevated tank. One 6-inch branch from our other main feeder line will be replaced with a 12-inch line, and will provide us with two complete 12-inch feeder lines to the city. This work also is going on and should be completed by the end of the year. The pipe will be a bell-and-spigot type with Leadite joints except at a railroad crossing, where U. S. mechanical joint pipe will be used. This pipe will be laid in a 36-inch concrete culvert.

Other long-range improvements that will be completed as soon as practical are the replacement of all our sheet iron cement-lined mains, replacement of several of our long runs of 6-inch cast iron lines with 12-inch pipe, and continuing as many as possible of our dead ends to tie into other feeder mains wherever it is practical and possible. We also plan to replace all our 2-inch mains with larger ones as demands on these mains increase.

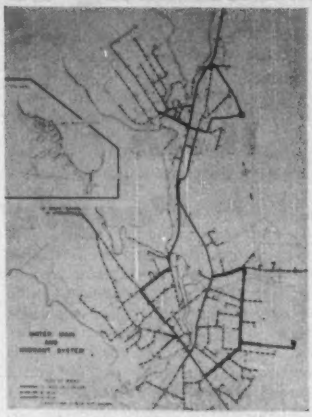
Alternate Pumping Main

Our engineers also suggest that we install an alternate pumping-main connection from our pumps to our street main in front of the pumping station. The station has two centrifugal pumps with a capacity of 3.6 mgd. In addition, we have a 750-gpm gasoline-driven pump mounted on a trailer which can be moved about if necessary and connected to available hydrants for emergency pumping. The alternate main connection would make it possible to continue pumping in the event of trouble on our present main.

We also have under study the elimination of the point where our two 12-inch mains cross, since a break at that point would put both feeder mains out of commission. These two feeder mains should also be interconnected.

We anticipate work on the fire hydrants also. Those hydrants which are served by 6-inch mains will in the future have 8-inch mains. The hydrants without proper nozzles to accommodate pumpers are being replaced by Eddy hydrants with 5-inch valve openings. Hydrants have four ½-inch and two 2½-inch nozzles with National thread.

Of interest also is the fact that the study brought out the unbalanced condition of our hydrant rentals, or fire-service charges. We receive $25 per year for each hydrant from the city. Preliminary figures show that this is about half of the figure we should receive for the service we render. These charges average 11.3% of the gross revenue in the 10 largest cities in New Hampshire. In Laconia, they produce 4.9 per cent. When these charges are adjusted, we should about triple the present revenue from this source.



Heavy line shows where work is taking place in the Laconia water system.

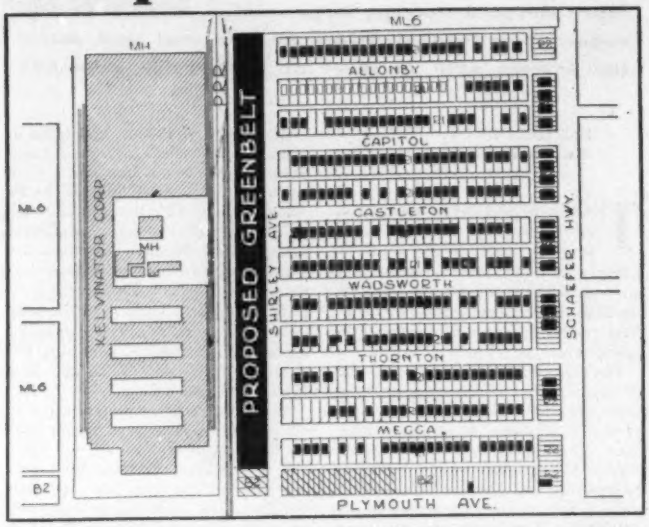
We also have pointed out to the city officials that the number of hydrants in Laconia is far below the average for a city of this size. Mr. Krauss, of the New Hampshire Board of Fire Underwriters, states that one hydrant is needed to serve each 92,000 square feet of area in the high-value districts, and 120,000 square feet of area in residential districts. Present spacing of hydrants shows that in the high-value areas each hydrant is serving 171,000 square feet of area, and in residential areas, 227,000 square feet of area. City officials have recognized this deficiency and are about to correct this situation.

The present study by Metcalf and Eddy showed that our present water delivery is equal to that of a 13-inch pipe. After reinforcements, the delivery will equal that of a 16-inch pipe. The system will enjoy a 60% reduction in loss of head after the reinforcements are made, and the fire-flows will be materially increased to the complete satisfaction of the city, the Public Service Commission, the Board of Fire Underwriters, and ourselves.

Planning for People—

With People

By JAMES W. BELL
Effectuation Division
Detroit City Plan Division



As shown in the sketch above, a Detroit residential area will be preserved with a greenbelt from the blighting effects of heavy industry and a railroad.

SOME four or five years ago, Detroit's City Plan Commission launched an interesting experience in *plan effectuation*, brought about by the Commission's desire to lay emphasis on the realization of plans as something distinct and different from planning itself. Consequently, Detroit's planning technicians have been harried; and the city's taxpayers have supported several "City Plan Effectuators" who, to meet the requirements of Civil Service, allegedly possess the combined characteristics of Charles Luckman, Machiavelli, Robert Moses, and Savonarola. With such eclectic personalities at work something had to give besides patience—and so it has.

Essentially, the most productive work —certainly the most gratifying— has been done at neighborhood level. Some three or four planned improvements have been realized. Another half-dozen or so are substantially on their way to completion; thus we feel productive in the sense that our objective—realization —is being met.

The Special Assessment

To illustrate, about four years ago the Plan Commission promoted enactment of a City Charter amendment that would permit special-assessment financing of such local improvements as off-street parking facilities, playgrounds and parkways, community centers, greenbelts, etc. After adoption by the local legislative body of an implementing ordinance, the Commission was legally enabled to pursue problems in neighborhoods, and to provide a means of financing if people could be interested.

Zoning in One Case Formed a Vicious Circle

The so-called Shirley Avenue Greenbelt Project indicates a neighborhood problem that is classic in Detroit. The tier of vacant lots adjacent to the railroad right-of-way and acting as a separator between the heavy industrially zoned land to the west, occupied by Nash-Kelvinator, and the single residence zoning to the east, is typical of what happens in a large industrial city that was substantially developed before enactment of a zoning ordinance. These lots lay fallow for years. Residential zoning limited use of the land to dwellings only. Proximity, however, to railroad and factory was not conducive to development for such purposes. FHA, for example, wouldn't insure a mortgage in such a location. On the other hand, a petition for rezoning for industrial use was violently opposed by the residential owners to the east and denied by the Commission. Industrial development on the property would, we felt, prove most deleterious to the residential environment and values. This action did not, however, solve the problem.

In an effort to be constructive, the Commission suggested to the resident owners — organized as the Pavedway Subdivision Association—that they consider using the recently enacted special assessment ordinance. It was pointed out that if the provisions of the ordinance could be met by the people in the neighborhood the disputed property could be condemned, placed under municipal ownership, and developed as a parkway, or greenbelt. The Commission offered the assistance of a staff effectuator who was instructed to work with them. This was the beginning of a work relationship between a group of citizens and their city government (Plan Commission, Parks and Recreation Commission, Board of Assessors, Common Council, City Treasurer) that extended over a two-year period.

First Steps in Securing Community Agreement

Our first step, in what proved to be a long but rewarding process, was to meet with Association officers. We stressed the advantage of the proposed parkway development and carefully explained the implementing ordinance. Here's the process under which we would

have to cooperate with each other:

- 1. Ten or more property owners in the vicinity of the proposed improvement must sign and submit to the Common Council an initiating petition requesting condemnation and development of the property in question for parkway or greenbelt purposes.
- 2. In exchange for the petition, and if approved by the Common Council, the city would produce:
  - —a plan of development
  - —estimated costs of acquisition and development
  - —a tentative assessment district
  - —a plan of assessment that would show the estimated assessment to be levied against each parcel of property within the tentative district.
- 3. If the owners in the assessment district wanted to proceed with the program, a second and concurring petition must be submitted to the Council. The concurring petition, however, must have the signatures of at least 51% of the owners of property within the district, and such 51% or more must represent at least 51% of the estimated total assessment.
- 4. Upon receipt of the concurring petition, and after validation of same by the city, a public hearing before the Council will be held on the improvement, to which every owner in the district is to be invited by mail.
- 5. If, after the hearing, the Council approves the project, they will order a tentative assessment roll and instruct the City Treasurer to collect in advance 10% of the estimated total assessment. The Council will also indicate to the property owners that they may have, ultimately, a certain number of years to retire the actual assessment. It is within the discretion of the Council to grant up to and including 10 years to spread an assessment.
- 6. Upon notification from the City Treasurer's office that the advance deposit is sufficient, the Council will order the property condemned.
- 7. After the city has possession of the land, the Park Department will be instructed to develop it according to plan.
- 8. After the *actual* costs have been determined, the assessment will be prepared and the owners will receive their special assessment tax bill for payment.

At the conclusion of our meeting with the officers, we suggested that if they felt their people would be interested in such a program, they call a general meeting and permit us to appear and go over the program again for the benefit of all. This suggestion was followed and such a meeting was held. The neighbors decided to proceed.

During the ensuing months we steered the project through additional meetings and several city departments. Through the various stages of processing, the people were encouraged to participate. Development plans and costs were reviewed with them prior to formal action by city boards or commissions.

The proposed assessments ranged from a maximum of about $100 per lot (the lots closest to the green-belt) to a minimum of about $5 at the extreme east side of the district.

An Unusual Request

Before attempting to get petitions signed, the Association officers discussed the estimated costs with various owners living in different-cost areas. Shortly thereafter we were visited by several of them. They wanted to know if the "assessment plan" could be altered. They pointed out that most of the home-owners living closest to the greenbelt area were young veterans who had just built or bought and, of course, were still paying for their homes. A hundred dollars, therefore, was an important sum of money. On the other hand, the folks living further to the east were older, many of the homes were paid for—many a family grown up. The nominal assessment was easy there. Consequently the latter group was interested in helping out the young folks and wanted to know if the assessments couldn't be reduced by about $30 at the maximum; increased by the same amount at the minimum, with a consequent alteration of the figures comprising the spread between the extremes. Such a revision, it was contended, would bring the costs more in line with ability to pay.

Conference and Letter

We were more than happy to take on this one. A conference with the Board of Assessors and a letter to the Council quickly solved it. The concurring petitions were then quickly and easily signed. The Association officers organized block captains. We briefed them on the petition procedure and supplied sufficient copies of the *assessment plan.*

A week or two prior to the public hearing on the Shirley Greenbelt, we counseled the Association to make a strenuous effort to get as many people as possible to the Council chambers. At the same time we suggested to the officers that they or people of their choosing find time to discuss their project with two or three of the Councilmen prior to the hearing. This, we contended, would make the councilmen aware of voter-interest, thus insuring greater councilman-interest when the hearing was on.

We also explained how the hearing would be conducted and recommended presentation techniques.

Because our Common Council meets between 10 and 12 in the morning, we didn't anticipate many people at the hearing. Fifteen or so people showed up, however, and won Council approval hands down.

After the hearing, the final step of collecting the 10% advance deposit was easily taken.

The condemnation proceedings were uneventful. Everything went well except the condemnation award. The owners were given about 50% more than we estimated! This was substantially the result of a sudden rise in value of vacant, residentially zoned property in the city, irrespective of location. It came with the realization that vacant residential property was becoming scarce in Detroit.

Where wisdom failed us, good luck favored us. The attorney for the city, in trying the case, had asked that two of the Association officers appear in court to testify. Their presence during the trial—a new experience—led to an understanding of the issues. The increased amount of the award appeared reasonable to them; and upon their advice and counsel, to the Association membership.

Happy Ending

The Plan Commission has recently received a letter of commendation and thanks from the Pavedway Subdivision Association, despite the price hike and the fact that the job is not complete. This spring our Parks Department has been working on the planting and landscaping that will finish the job.

We feel confident that the special-assessment tax bill will be willingly accepted and promptly paid.

This somewhat simple neighborhood project has been most productive for the following reasons:

- A group of neighbors have had a working experience in democracy that has made them more aware and understanding of municipal government.
- It has stimulated interest in daily news reporting of city business and in the kind of people running for public office.
- It has produced support for planning and prestige for the Plan Commission (the Commission has been consulted on other neighborhood problems and has been asked to provide speakers at general neighborhood meetings).
- It provides a vehicle for good publicity that yields ego satisfaction, which, in turn, boosts morale of all concerned.

Pit-and-crane design in small-city incinerators is typified by the Darien, Conn., unit. The crane and bucket operate from a monorail, and are controlled by push buttons which are at the side of the pit. This incinerator uses Pittsburgh-Des Moines furnaces.

The Elements Of Refuse Collection And Disposal

By WILLIAM S. FOSTER
Engineering Editor
The American City Magazine

Part IV—Incinerators, the factors in their design and operation, and a discussion of their types

IN DESIGNING incinerators today, most engineers rely on one of the several proprietary types of furnaces and design the building and refuse-handling facilities around it.

At one time, the principal specification for these furnaces was that their area be such that they would have a burning rate of 50 pounds of refuse per hour per square foot of inside furnace area. Furnace designers, however, have supplied stoking arrangements inside the furnace so that the rate can be increased. Professor Rolf Eliassen, of M.I.T., reports that the burning rate of the Winnipeg, Canada, incinerator is 78 pounds.[1] At Tonawanda, N. Y., the rate is 112 pounds. Both cities use Nichols Engineering and Research Company furnaces. They have a rotating cone and rabble arms that are perforated so that air can be introduced and the refuse agitated to encourage burning.

Another important consideration in furnace design is the temperature in the combustion chamber. If this remains at 1,200° F. at least, the plant should enjoy freedom from odors emanating from the stack—the high temperature oxidizes any odor-producing materials.

Mark Owen, consulting engineer, Indianapolis, Ind., analyzes this further. Combustibles, he explains, can be summarized as carbon, hydrogen gas, carbon monoxide gas, and one of the many hydrocarbons. Refuse is basically the waste from plants and animal tissue. From the standpoint of combustion, the difference between coal and refuse, aside from moisture content, is that coal lost most of its oxygen when pressure and heat were applied during its formation.

Most agree, Mr. Owen explains, that unpleasant odors in refuse arise mainly from fatty acids, which break down at temperatures under 800° F. He lists the ignition temperatures of the other principal products as follows:

Hydrogen	1076° F.
Carbon monoxide	1180° F.
Methane	1202° F.

Smoke Control

One also should specify that the smoke discharge from the stack will be of a density that will not cause trouble. The trend today is to be more exacting in smoke requirements. If industries in an area must be policed for smoke emissions, the city, in its smoke-producing equipment, should set a good example.

Customarily, one specifies that the smoke never be darker than No. 1 or No. 2 as measured by the Ringleman Chart established by the United States Bureau of Mines, except during the period when the furnaces first go into operation.

Simplicity is the keynote of the Norfolk, Va., incinerator. Two ramps permit trucks to drive straight through the building, depositing their loads on the floor and into the Nye furnaces.

Most incinerator manufacturers design their furnaces to a rated size of so many tons per 24 hours of operation. Thus, when one terms an incinerator, for example, a 100-ton plant, this means that the incinerator can burn 100 tons of refuse to an inert ash over a 24-hour period. The main weakness in such a specification is the variability of refuse itself. Refuse by nature is not a particularly consistent material. It is difficult indeed to select refuse for testing the capacity of the furnaces that will always be fair.

Moreover, one must keep in mind that the refuse-collection crews will work only an eight-hour day. Thus, if a community has 100 tons of refuse to burn daily, it will have to use a 300-ton plant in order to burn the refuse in the eight-hour period.

To keep the size of the incinerator furnaces down, some designers build a storage pit in the incinerator. This pit acts as a type of reservoir, allowing the refuse trucks to discharge their loads at their convenience. A crane of some type is also supplied so that the refuse can be transferred from the pit to the furnaces at a rate that the furnaces can handle conveniently.

With the storage pit—or bin, as many call it—the furnaces can be operated over a longer period of the day and are not dependent on the prompt and regular delivery of refuse to keep them operating smoothly.

Floor-Dump Plants

However, a good deal of the controversy exists in the minds of designers about the use of the storage pits. Some feel that they are unnecessary and expensive. They point out that if the trucks dump directly on to the floor of the incinerator and if the refuse is then fed into the incinerator furnace, the crews have a greater incentive to

see that each day's accumulation of refuse is burned. With the pit, they say that the refuse may be allowed to accumulate; the pits are hard to clean and thus a source of odors and a general nuisance.

Norfolk, Va., feels that this is the case.[2] The designers called for four 100-ton Nye circular furnaces to handle about 150 tons of refuse per day. The incinerator is very simple. The trucks discharge their loads directly into the furnaces, whose capacity is great enough to receive all of the loads in an eight-hour shift.

In 1947, the city officials reported that the new incinerator was operating at a labor cost of 0.34 man-hours per ton of refuse using a 6-man crew.

Mt. Vernon, N. Y., is another city that did not use the storage pit.[3] Commissioner of Public Works August Stolz had to dispose of 125 to 155 tons of refuse per day in an eight-hour shift. So, after a very careful study of the two types, he constructed a 600-ton incinerator with a floor-dump design. The incinerator uses four Nichols Monohearth self-stoking furnaces, each rated at 150 tons per 24 hours. His design requirements went as follow:

	Per Ton of Rated Capacity
Combustion chamber volume	15 cubic feet
Furnace volume	7.5 cubic feet
Drying hearth area	0.5 square feet
Drying and burning grate area	0.85 square feet
Power requirements	1.25 kw-hrs.
Stoking labor	0.2 man-hours

Pits-and-Crane Designs

Needless to say, many other designers do not agree with this way of thinking. Probably one of the most notable example of the pit-and-crane type of incinerator is the one operated at Darien, Conn.[4] This incinerator is unusual because it is so small. Darien burns refuse for several of the surrounding communities as well as for itself, but does not have to handle over 25 tons in any one day. To do this, Henry W. Taylor, New York City consulting engineer, designed for the town a 60-ton per 24 hours incinerator, consisting of two 30-ton Pittsburgh-Des Moines furnaces and a storage pit operated by a monorail crane and bucket. The crane and bucket can be operated by push buttons and thus do not need a special crane operator. Town Engineer Walter Bates has pointed out that the pit is most useful, because he has no way of knowing when the trucks from the outlying areas will arrive to discharge their loads.

Largest of the floor-dump plants is the 600-ton incinerator at Mt. Vernon, N. Y., which has four Nichols self-stoking Monohearths. The trucks dump against metal inclined plates, above, to aid in charging the furnaces.

The Darien incinerator, incidentally, uses the same bucket for ash handling. The residue from the furnaces is transferred to the ash pit by a water-jet arrangement that quenches it effectively. The bucket, when it is not charging the furnaces, takes the residue from the pit and places it in a truck for final disposal.

The Darien incinerator, also, is located in the geographical center of the town. The town is a suburban community with high residential standards. Yet this incinerator, screened in by trees, and consequently out of sight, has produced no objectionable nuisance to the Darien residences.

Worth mentioning, in passing, is the experience of one Westchester, N. Y., community that built an incinerator some years ago on its outskirts in order to avoid the fearful objections of some who disliked having an incinerator for a neighbor. The village opened a new roadway to the incinerator and labeled it "Incinerator Road." As time went on, the village grew, and some built their homes along the attractive new road. However, these new residents disliked having their new homes on a street named "Incinerator Road," so they petitioned the Village Board to have it changed. The Board willingly made the change; revised the name to "Burnham Lane."

Refuse-Heat Value

For an incinerator to operate successfully, the refuse must have ample heat value. This heat value varies from 7,000 to 8,000 BTU's per pound of dry solids. Greeley and Hansen, consulting engineers who designed the Winnipeg, Canada, incinerator, estimated that the city's mixed garbage and combustible refuse had a heat value of 7,000 BTU's per pound of dry solids.[5] With this in mind, they were able to make their design so that the temperature would not drop below 1,400° F. during the plant's operation, and the discharged smoke would be equal to a Ringleman test of No. 1.

If an incinerator must handle refuse with a lower heat value, then supplemental fuel may be needed to maintain the high temperatures necessary to destroy odor-producing substances in the smoke. Frequently this occurs when the refuse received is very wet. Robert Stellwagen, Detroit consulting engineer, has determined that the moisture content goes up as the organic-garbage content increases.[6] With this in mind, he has made up a table, shown on this page, that will guide in the use of coal as a supplemental fuel.

The Use of Coal as a Supplemental Fuel to Maintain High Furnace Temperatures When Refuse Has Low Heat-Value

Per Cent Garbage	*Per Cent Rubbish*	*Per Cent Moisture*	*Coal (lbs. per ton refuse) 12,500 BTU Summer*	*Winter*	*14,500 BTU Summer*	*Winter*
65	35	50	...	...	...	...
70	30	53	...	13	...	11
75	25	56	42	67	36	57
80	20	59	95	212	81	103
85	15	62	148	175	126	150
90	10	64	201	229	172	196
95	5	67	254	284	217	242
100	..	70	307	337	261	287

Costs

Practically everyone wants to know how much it costs to operate an incinerator. And comparative costs such as these are most difficult to obtain. When they are obtained, they should be examined very closely. In general, the cost of collecting the refuse is greater than the cost of disposal by incineration. The cost figures recorded for Kenosha, Wis., give some indication of good practice.[7] The plant serves a population of 52,000. It uses Pittsburgh-Des Moines furnaces and can burn refuse at the rate of 5 tons per hous. Collections per week per dwelling unit averaged 8.9 pounds in February and 15.6 pounds in June. The following costs were compiled in 1945:

(*Continued on page* 163)

Now is the time to decide

That Social Security Question

for local-goverment employees

By ARTHUR ACKERMANN*

ANY federal-state agreement to bring a group of state or local-government employees under social security can be made retroactive to January 1, 1951, if it is signed before January 1, 1953.

This means that by taking action before the deadline date, such employees can be given the full benefit of the amazingly liberal provisions of the new social-security law. It means that those employees who reach the age of 65 during or before April 1952, can retire in that month and draw social-security retirement pay of as much as $80 per month for a single person, or $120 for an aged couple, if they are covered retroactively. It also means that every employee included in such a retroactive agreement will begin, in April 1952, to enjoy fully insured status with respect to survivorship benefits.

If he is a married man with two small children, earning at least $3,600 per year, the lifetime insurance feature of social security may be worth as much to him as term insurance with a face value of $35,000. That is because his widow and children could draw up to $150 a month for as long as 18 years, and his widow, if still living, could draw $60 a month beginning on her 65th birthday and continuing for the rest of her life.

Only through *retroactive* coverage, however, will state and local employees who are now over the age of 22 be able to take full advantage of the new law. If the agreement bringing them under social security is signed *after* the deadline date, or is not retroactive for some other reason, they will suffer under two distinct handicaps. The first of these relates to the manner in which their *benefit rate* is computed. The second affects their *insured status*.

All social-security-benefit rates are based on the "average monthly wage" of the insured person. In computing the "average monthly wage" of anyone who was over the age of 22 on January 1, 1951, and who has no covered earnings before that date, an average is taken of his covered earnings over the months *beginning with January* 1951, whether he was then in covered employment or not. If he comes under coverage for the first time in 1953, for example, and earns $3,600 (the maximum) in wage credits that year, his "average monthly wage" at the end of 1953 is only $100 ($3,600 divided by 36 months). Subsequent months of high earnings will, of course, bring his average up, but it will be forever impossible for him to qualify for the maximum retirement benefit. If he should die before reaching retirement age, any benefits payable to his survivors would be similarly reduced by those two years of zero covered earnings.

	A *Retroactive coverage to Jan. 1, 1951*	*B* *Coverage beginning Jan. 1, 1953*
Actual yearly earnings	$3,600 or more	$3,600 or more
Month first eligible for all benefits	April 1952	July 1954
"Average monthly wage" when first eligible	$300	$100
Retirement benefits, per month		
Self	$80	$50
Wife over 65	$40	$25
Survivors' benefits, per month †		
One child under 18	$50	$37.50
Two under 18, each	$50	$31.25
Mother of eligible child	$60	$37.50
Maximum family benefit per month	$150	$80

Insured Status

Insured status under social security, for anyone now over age 22 who has no previous covered earnings, is also determined, with January 1, 1951, as the starting date. A minimum of six "quarters of coverage" (quarter years in which covered earnings amount to at least $50 must be acquired by such a person before he is eligible for any benefits at all. Moreover, roughly half of the quarter years after 1950 and before the quarter in which he dies or retires must be "quarters of coverage." Thus, the state or local government employee who does not come under coverage until 1953 has a handicap of two vacant years (eight quarters) to make up. He will not be eligible for benefits of any kind until the middle of 1954. Then he will have the necessary minimum of six "quarters of coverage," and will have earned them within the most recent 13 quarter-years. He will, therefore, be "currently insured" and his children and their mother, but no one else, will be eligible to monthly survivorship benefits if he should die. To become "fully insured," and thereby eligible for all types of benefit, including retirement benefit, he would have to have one more "quarter of coverage." So he could not retire until July 1954, and until then some types of survivors would have no protection in case of his death.

The advantages of retroactive coverage may possibly have been too little known or understood heretofore. This may account for the fact that at this writing only six states — Oklahoma, Idaho, Arkansas, West Virginia, Utah, and California — have entered into the necessary agreements with the Federal Security Administrator to give social security protection, as of January 1, 1951, to some of the local-government employees within their borders. In many other states, the legislature will meet this year but will not meet in 1952. Consequently, any action on social security must be taken this year, if the affected employees are to come in without the handicaps already mentioned.

Just how serious these handicaps may be is illustrated in the chart above, in which column A pertains to a local-government employee who is covered retroactively to January 1, 1951, and column B to an otherwise identical individual who first comes under coverage on January 1, 1953. The benefit rates shown in the chart were computed

* From 1939 to 1946, the writer was an economist with the Bureau of Old Age and Survivors Insurance, engaged in planning extension of social security to groups not then covered. He returned last year from Vienna, Austria, where he spent four years as insurance specialist with the United States Allied Commission. He is now associated with the Veterans Administration.

† If the total of individual benefits would exceed the family maximum, as in the case of two surviving children and their mother, all benefits are reduced proportionately until the total equals the maximum amount.

on the assumption that, in either case, the employee dies or reaches retirement age immediately after becoming fully insured.

The types of survivors who may benefit are not all indicated on the chart. Aged dependent husbands or widowers of insured women, and aged dependent parents of male or female insured persons, may also be eligible to benefits ranging from one-half to three-quarters of the insured person's "primary" amount. Even a "former wife divorced" is eligible to a mother's benefit if she has a child of her former husband in her care, and was dependent on him at the time of his death.

For forms and further information local officials should get in touch with the Regional Representative of the Bureau of Old Age and Survivors Insurance in the nearest regional office of the Social Security Administration. The addresses of these regional offices are:

120 Boylston St., Boston 16, Mass.
42 Broadway, New York 4, N. Y.
330 Independence Ave. SW., Federal Security Bldg., Washington 25, D. C.
1100 Chester Ave., Cleveland 14, Ohio
69 West Washington St., Chicago 2, Ill.
50 Seventh St. NE., Atlanta 5, Ga.
2305 Fidelity Bldg., 911 Walnut St., Kansas City 6, Mo.
201 Norman Bldg., Dallas 2, Texas.
9 Equitable Bldg., 730 17th St., Denver 2, Colo.
441 Federal Office Bldg., Civic Center, San Francisco 2, Calif.

Local officials can also write to the Director of the Bureau of Old Age and Survivors Insurance, Society Security Administration, Equitable Building, Calvert and Fayette Streets, Baltimore 1, Md., requesting him to forward their inquiry to the proper regional office.

What Makes a Good Inlet for Street Gutters?

Studies at the University of Minnesota show that three designs have exceptionally good characteristics

A GRATE inlet for extended use should combine the features of high capacity, self-cleaning ability, and economy. So reasoned investigators at the St. Anthony Falls Hydraulic Laboratory, at the University of Minnesota, when they undertook to learn what type of inlet works best. The investigators conducted their research in cooperation with the Minnesota Department of Highways and the United States Public Roads Administration.

For a gutter of approximately 20-to-1 cross slope, the investigators found that three designs appeared to satisfy these requirements to a reasonable degree. These appear in the accompanying photographs. Weighing their advantages and disadvantages, there appears to be no apparent preference among the three types. Inlet 1 has a slight advantage in self-cleaning ability. Inlet 3 demonstrated the best all-around capacity characteristics. Inlet 1 proved to be superior in passing paper debris and leaves, although inlets 2 and 3 demonstrated definite advantages with grassy material.

Inlet 1 has ten 1¼-inch openings, each 13¾ inches long. Its over-all dimensions are 16 by 24 inches. Inlet 2 has nine openings, also 1¼ inches wide each. The openings vary from 4 to 18.4 inches. The over-all dimension is also 16 by 24 inches. Inlet 3 has six openings, each 1⅜ inches wide. The length of the openings varies from 8 to 26 inches. The over-all dimension is 24 by 24 inches.

The relative costs of the inlets and the necessary appurtenances depend on several factors, but, for lack of better method, grate area was used as a rough basis for economy comparison. In area, the three inlets are about equal and all are somewhat smaller than standard inlets. Inlet 1, however, has an advantage in its simplicity. It can be used in either position. Inlet 2 is also designed for use in either position by changing orientation to the curb ine. Inlet 3 would require both a left-hand and right-hand design, resulting in additional cost and inconvenience.

Inlet #1.

Inlet #2.

Inlet #3.

The study uncovered the following conclusions which are applicable to a grate inlet in a continuous gutter, having a cross slope of approximately 20 to 1, and a velocity index within the range of tests:

1. The capacity of a grate inlet can be almost doubled by allowing between 8% and 15% of the gutter flow to pass by the inlet. This amounts to 0.10 to 0.20 cubic feet per second per inlet. Greater carry-overs yield smaller returns.

2. The capacity of a grate inlet in a given gutter is determined mainly by its width normal to the flow, and by the efficiency of its openings.

3. The efficiency of grate-inlet openings depends largely on the effective length of the opening in the direction of flow.

4. The capacity of an inlet with diagonal bars and openings can be increased substantially by rounding the top surface of each bar to the approximate form of a free over-fall.

5. For conventional types of inlets, curb openings are of little or no value in increasing inlet capacity unless capacity is provided by ponding.

6. For inlets having diagonal bars, curb openings facilitate self-cleaning of the inlet bars and may increase inlet capacity by intercepting spray.

7. Longitudinal openings pass a large percent of small debris such as leaves, while transverse openings clog readily.

The study was undertaken by Curtis L. Larson, Research Fellow in Hydraulics, and Lorenz G. Straub, Laboratory Director, of the St. Anthony Falls laboratory. Full details are described in Laboratory Bulletin No. 2.

Playground Equipment—

Availability, Selection, Installation, and Maintenance

Here is the American Castle Tower, designed for climbing-play exercise.

By NORMAN R. MILLER, *Vice-President*
American Playground Device Company
Anderson, Ind.

CAN I still buy new playground equipment? How can I make sure that the equipment I now have will last through the emergency?

These are questions that haunt every purchaser of playground devices. In the face of increasing shortages, they are unavoidable.

While defense production is seriously curtailing civilian use of steel, malleables, and top-grade hardwoods, and can be expected to cut into these materials more and more deeply, many manufacturers can still supply those who order promptly. All who contemplate purchasing should act now, before shortages and controls become even more strangling.

To assure receiving approved equipment which will require minimum maintenance through the years, purchasers should insist upon actual representative samples from all manufacturers of the apparatus to be bought. If not that, it would pay to inspect the equipment as it is made at the various plants, as a means of double checking the actual weights of comparable units.

The first consideration is correct installation, with adequate concrete footings and perfect alignment of all frame members to assure maximum structural strength and rigidity. Properly installed, your equipment will withstand years of severe use and abuse.

Correct Installation

Correct installation is much easier than it may at first appear to be. Leading manufacturers supply detailed, easily read blueprints showing the ground plans and outlining recommended procedures for installation of each unit. These blueprints also point out numerous ways of simplifying the process.

Keeping in mind that frame members usually constitute the major portion of the weight of swing sets, combination units, nursery swings, and similar devices, it is often more important to the buyer to receive his frame members at the much lower "pipe" freight rate than at the substantially higher "playground apparatus" freight rate, which applies when the pipe members are drilled, formed, welded, or shipped with any apparatus attached to them.

Turf to Cover All Concrete Footings

Although the concrete around the base of all frame support members should always be trowelled smooth and somewhat conically so that it is highest at the pipe members proper, it is wise, wherever possible, to have at least 4 inches of turf covering all concrete footings, level with the ground line. This adds safety for the youngsters and protects the footing.

In the case of Castle Walks, Castle Towers, and similar climbing devices, there are so many upright members that only 6 inches of concrete footing are needed to assure far more than adequate rigidity; here, again, earth can be used to fill up to the ground level and seeded with grass, as a safety measure. Many park officials now simply pour a 5-to-6-inch concrete base in the area covered by the climbing unit, without an individual hole for each of the uprights, and set the structure into the wet concrete, filling with dirt after the concrete has set. This procedure further reduces installation time for a climbing structure, and makes it easier to align all members perfectly.

Equipment should be checked care-

fully at time of delivery to make sure that the carrier has delivered all the bags, bundles, cartons, crates, and pieces detailed in the bill of lading accompanying the invoice. Don't sign the receipt before doing this. Valuable time is lost if, with a crew assembled and already installing, you then find that the carrier has lost some parts in transit or failed to deliver all of them. Claims for loss or damage in transit can be enforced against the carrier only if that loss or damage is acknowledged by the carrier's delivery agent on the freight bill over his signature.

While part of the crew is beginning to assemble the units, others can stake off for the excavations according to the ground plans. With the holes properly located and dug, the concrete mix can be poured, and while the mix is still wet, the units—now assembled but with all fittings kept fairly loose—can be lifted into position and set into the concrete.

Alignment

Alignment of all frame members is of paramount importance, to assure best appearance, superior performance, and maximum structural strength. Therefore, while the concrete is still wet and the fittings still loose, a level should be used on all members to bring them into correct alignment, with top beams level and straight and supports vertical to the ground. After alignment, fittings should be tightened, and the concrete allowed to harden. No apparatus should be attached to the frames, nor any playground placed in use until the concrete footings have thoroughly hardened. The minimum time allowance is 24 hours; more, if possible.

Playground equipment should always be installed with a definite, planned layout. Since children play best and benefit most within their own age groups, the ideal playground incorporates a primary play area for children from two to six years old, a junior play area for those from six to 10 years of age, and a senior play area for youngsters 10 years and older. The apparatus in these areas should be sized and designed to intrigue the interest and develop the abilities of these distinct age groups. It is also wise to install devices in line or in batteries, to conserve ground space essential for free play and organized games, and to present a neater appearance. Finally, trees, shrubs, and flowers should be planted for beauty and shade.

Maintenance Tips

1. All playground and pool equipment should be inspected at regular intervals during the season. Frequent inspections will focus attention promptly on recurring acts of vandalism, the greatest threat to public recreational equipment, and will enable you to remove from service promptly any apparatus unsafe for use or needing repair.
2. Inspect all wood parts with particular care, for badly worn, splintery, or cracked slide siderails, swing seats, or see-saw boards are dangerous and should be replaced or repaired at once.
3. Some park departments and many schools still repair their equipment only at the start of the season, then let nature take its course; it is urgent that you continue this inspection and repair *throughout* the season.
4. Makeshift or temporary repairs are not only false economy, but they also develop additional hazards. If your equipment is to see you through and serve you well, repairs must be thorough and workmanlike. They add years to the life of the apparatus and cut your maintenance costs.
5. Refinish all wood parts regularly if you want them to enjoy a long life. Sand them to a reasonable smoothness, and use any good outdoor enamel.
6. Worn chute slides present a special problem, since few park systems or schools have tools and equipment necessary for a real job. If the bedway or siderails are badly worn, ship them to the factory for a factory rebuilding job. If the chutes have been in use ten years or longer, it is often good economy to replace the worn chutes with new ones of all-steel construction. Send the chute fittings along with your chutes, so that the factory can properly locate them on your new chutes, thus greatly simplifying your task of reinstalling.
7. If they have been properly galvanized by the hot-dip process, the metal parts of your playground and pool equipment will present few problems until they have been in use for some eight years or more. Indeed, if they were hot-galvanized originally, the pipe members, chains, and malleable fittings weather out smooth and shiny with the years, requiring protective finishing only when signs of rust begin to appear. When that occurs, simply clean the metal parts with steel wool or emery paper, then apply two coats of any good grade of aluminum paint or outdoor enamel, or, if bright colors are not desired, any standard asphalt-base bridge paint.
8. For protection and easier reinstallation, store all your equipment in an orderly, organized manner, so that each piece has a place.
9. Standardize on equipment to simplify replacement, and to make installation, repair, and maintenance work more routine.

Some Conclusions on the Cost-of-Living Pay Plans

FROM the history of the salary plan for St. Paul, Minn., I feel that there is no question but that salaries in government can be adjusted in direct relation to the cost of living. It it were not sound, this plan could not have endured for the past 30 years. It is true that adjustments should be made from time to time, or else you may find that the plan is bursting at the seams. In times of rapid inflation it is often hard to keep up with salaries paid in industry, but those administering the salary plan should be alert and provide for such emergencies.

There are some faults with all cost-of-living plans, but I believe the most common one is that since budgets must naturally be made several months ahead of time, it is hard to keep a close relationship between salaries and the actual cost of living. In St. Paul, we make a budget in August to provide funds for the following year starting January 1. It is true that since we use the June 15th cost of living, our employees are working on a salary schedule in some cases 18 months behind the cost of living. Some cities adjust salaries quarterly or semi-annually, but, unless some reserve fund is provided, this poses a serious budget problem.

Another problem that must be faced by those setting up a salary plan based on the cost of living is how far to apply the full adjustment. Does the cost of living affect the higher-salaried employees on a percentage basis the same as those in the lower brackets? Sometimes this problem is further complicated by a salary limitation in the charter. When this is the case, the employees in the higher brackets reach the maximum salary and naturally the cost-of-living adjustment can no longer apply.

Most governmental subdivisions have some employees who are doing work similar to that in outside industry. Since these wages in private industry are set by negotiation, probably based to some degree on the cost of living, it is often necessary to make adjustments in salary plans to insure harmony with labor organizations. Failure to recognize this factor has been the downfall of many salary plans.

Although there may be faults with any particular plan, I feel that with proper study and administration, a salary plan based on the cost of living can solve many of the problems confronting governmental jurisdictions today.

JOHN J. FARICY
Chief Accountant
St. Paul, Minn.

Excerpts from a talk presented at the annual conference of Municipal Finance Officers Association in Dallas.

RESCUE

IN THE turmoil of an attack and its immediate aftermath, there must be crews whose sole function is life-saving. They must not fight fires, try to direct traffic, or otherwise let themselves be deflected from rescuing people. Vitally important as are the fire fighters, police, and construction and demolition forces, the very hugeness and danger of the physical powers opposing their efforts tend to make the humans involved seem of very secondary consequence—at most an annoyance, not an obligation. The rescue crews, on the other hand, fit their operations to the conditions they find, sticking to the one purpose of freeing and removing the victims involved.

It is not expected that, in any target city and its suburbs, there will be one organization responsible only for rescue, as the fire department's sole function is that of fighting conflagration, and the police department's that of maintaining order. Types of rescue are to a considerable extent determined by the conditions. The simplest type is finding a man with a broken arm lying in a gutter. A man caught in a stalled elevator in a burning building poses a much more complicated problem. Crew skills required for rescues of the latter type are indicated by the courses of instruction given at the Rescue Training School of the New York Civil Defense Commission.

Curriculum

These courses include oxy-acetylene cutting; how to handle "hot" electric wires; use of dust respirators; oxygen type gas masks in dust, mist, and gas atmospheres; and how to cope with broken water, sewer, and gas mains. The theory and practical use of various knots, lashings, and riggings; types of building construction, and the use of various kinds of tools are also in the curriculum, as well as a course in leadership for rescue squad and rescue team leaders, and another in management and command responsibility, and methods of setting up and operating similar rescue-training schools in local communities.

In New York City, for instance, heavy rescue work centers in the Public Works Department. Personnel for this division of rescue is drawn from the departments of Public Works; Sanitation; Marine and Aviation; Water Supply, Gas and Electricity, and Housing and Building; also the Borough Works Department in each of the five Borough President's offices. In addition, repair and construction forces of telephone, electric, gas, steam, and other utility companies, and the firms handling underground conduit systems of communications lines, are automatically enrolled in Public Works Emergency.

The principal service units of this organization are the heavy work and rescue batteries, with the following duties:

- All rescue that entails shoring, bracing, tunneling and related work.

- Demolition or shoring of unsafe structures; clearing heavy wreckage from streets to permit passageway of emergency vehicles; emergency filling of craters in roads. Removal of debris from manhole and valve covers to permit repairs and proper maintenance is a primary job.

- Temporary repairs to roads and sewers, replacing pipe or conduits, bridging or filling craters, pumping out flooded cellars to permit repairs, *temporary emergency* repairs to broken sewer pipes, manholes, catch basins, regulators, floodgates, and related facilities.

- Decontamination of poison-gas areas. Batteries will be supplied with motorized equipment, including flushers, sand spreaders, and power spray and chemical units to neutralize areas in which persistent blister gases have been dropped or sprayed on walls, streets, and other open spaces. They will operate under close supervision of specialists in war-gas defense.

The above tasks call for 30,000 men—crane and bulldozer operators; burners, welders, and helpers to cut or support steel; housewreckers and helpers for demolition and bracing, and laborers for lifting, clearing, and moving.

Other service units of this emergency

For this picture, taken on the dot of an explosion in a California chemical plant fire, Reginald McGovern, Redwood (Calif.) *Tribune* photographer, won first prize of $250 in the First Fire Foto of the Year Contest, sponsored by the National Press Photographers Association and the National Fire Protection Association, as announced May 10, 1951. He used a 4-by-5 Speed Graphic, 200th of a second at f5.6, with a No. 5 flash bulb and Eastman Super Panchro Press film.

division consist of Local Public Works Squads, one in each of the city's 325 fire districts. A squad includes a licensed plumber and helper, a licensed electrician and helper, a rigger and helper, and two foremen carpenters and helpers. Men in the squad will have hand tools and a plumber's truck.

In the control and report centers will be clerks, typists, stenographers, and messengers to assist chart plotters and dispatchers, all in the Public Works groups.

Light rescue work is the job of immediately extricating people trapped in the debris and wreckage of buildings. In a number of cities this will be the responsibility of members of the building trades. It is the job that opens the way for the Medical Emergency Corps, so that the injured can be removed to first-aid and casualty stations. The men include riggers, shipyard workers, longshoremen, plumbers, steamfitters, carpenters, and other groups of husky, durable men, capable of performing arduous work under trying conditions. Training in emergency teamwork, coupled with their own experience, makes them key men in the civil-defense program, able to undertake any type of mechanical task associated with building construction.

The bomb on Hiroshima produced 65% casualties. American cities have better building construction. Has a potential enemy better bombs? It is estimated that an attack on a city the size of Hiroshima — with a population around 300,000—would result in 20,000 persons' requiring the services of trained rescue teams. British records indicate that 20 to 30 man-hours are required for a single piece of rescue work.

Civil-Defense Film List—Part II*

By WARREN CHENEY
Chairman, Training Aids Committee
Civilian Protection Group, New York, N. Y.

THIS is the second installment of the CD Film List, containing evaluated films for civil-defense, compiled by the Training Aids Committee of the Civilian Protection Group.

ATOMIC ALERT. 1951. Available in two lengths, 15 and 10 min. For rental or purchase at Encyclopedia Britannica Films Libraries; also rentable from most A-V dealers. Produced by Encyclopedia Britannica Films primarily for school audiences, the film is also quite worth while for adults. It shows how to select and equip a shelter area in a home and how to act if an A-attack comes. Differences in destructive effects of the air-burst and water-burst A-bomb explained. ARP drills in schools depicted. Narration and dialogue used to give the characters the feel of real people. One of the best short films for both public and CD personnel.

SURVIVAL UNDER ATOMIC ATTACK 1951. 9 min. For rental and purchase from Castle Film Libraries, also from most A-V dealers; available in 8-mm sound, and in silent versions both 16-mm and 8-mm. Produced by United World Films, this is the first in the Federal Civil Defense Administration series of one-reel films based on FCDA booklets. It shows how to select and equip shelter areas in basements and hallways of homes; touches on decontamination of persons who have been exposed to radioactive dust or fog; includes brief views of A-bombed buildings in Japan while discussing A-bomb-burst effect. Useful for lay audiences and CD workers as an introduction to some problems of atomic ARP.

SELF PRESERVATION IN ATOMIC BOMB ATTACK. 1951. 18 min. For loan from Army Film Libraries as ASFR 128. Made for the Armed Forces Special Weapons Project by Cascade Films, Hollywood, the film shows how to take cover, how to select shelter in a city when away from home or office, how to act after the bomb has burst. Sequence on effects of an under-water A-burst one of the most informative yet filmed. Excellent for both the public and CD personnel.

OPERATION CROSSROADS. 1946. 27 min. Color. For loan at Army Film Libraries as MISC 1323; from Navy Film Libraries; and for rental or purchase from Castle Films Libraries. Made by the Navy, the film features the air-burst and water-burst A-bomb tests at Bikini, shows destruction caused to shipping by each type of A-burst. Useful as background information for CD personnel.

THE ATOM STRIKES. 1946. 31 min. For loan from Army Film Libraries as MISC 1235; for rental or purchase at Castle Film Libraries and most A-V dealers. Signal Corps film features A-bursts at Alamagordo, Hiroshima, and Nagasaki. Includes extensive documentary footage of destructive effects in Japan. Useful as background information for CD personnel.

A TALE OF TWO CITIES. 1946. 14 min. For loan from Army Film Libraries as ANSM 74; for rental or purchase from Castle Film Libraries and most A-V dealers. Signal Corps film features A-bomb results in Hiroshima and Nagasaki, duplicates a good deal of the footage of THE ATOM STRIKES, amounts to a short version of the latter film. Useful as background information for CD personnel.

THE MEDICAL EFFECTS OF THE ATOMIC BOMB. 1950. Color. Three-part Signal Corps film available at Army Film Libraries for loan; for rental and purchase at Castle Films Libraries and most other A-V dealers. *Part I* (32 min. Army No. PMF 5058) is essentially non-medical, concerns damage and casualty results in Hiroshima and Nagasaki. Animation sequences discuss fission, ionization, plus the heat, blast, and radiation effects of an A-bomb burst. *Part II* (37 min. Army No. PMF 5148) concerns medical aspects of A-burst casualties, discusses treatment and therapy, includes documentary footage of several cases. This Part is suitable for medical personnel only. *Part III* (28 min. Army No. PMF 5149) is non-technical, concerns ways in which auxiliary medical units would go into action after an A-bomb attack. Parts I and III are useful for indoctrination of CD personnel of all categories; Part II is of particular value for all CD first-aid, rescue, and auxiliary medical personnel as well as to the medical profession.

PATTERN FOR SURVIVAL. 1950. 20 min. Color and black-and-white. Available for rental or purchase from Cornell Films, New York City, and from most A-V dealers. Produced by Cornell Films, NYC, the film has an introduction by WM. L. Laurence, shows how to select and equip a shelter area in the home, presents many informative facts about the A-bomb, includes scenes of Hiroshima and Nagasaki. Useful for public and CD personnel as an introduction to some problems of atomic ARP.

YOU CAN BEAT THE A-BOMB. 1950. 20 min. For rental or purchase from McGraw-Hill Text-Film Dept., New York City; also rental from most A-V dealers. Produced by Emerson Films, Hollywood, this film was distributed as a 35-mm short by RKO, then made available in 16-mm through McGraw-Hill. Picture shows how to select and equip a shelter area in the home and in an apartment. Discusses briefly the effects of air and water A-bursts, illustrates what to do under attack of each type. Useful for public and CD personnel as an introduction to some problems of atomic ARP.

GUARDING AGAINST SABOTAGE. 1943. 45 min. For loan from Army Film Libraries as TF 19-2032. Produced in Hollywood for the Signal Corps, the film is still uniquely valuable for its depiction of sabotage methods and materials. Included are the incendiary pencil, cigar, tobacco pouch, 2-by-4 lumber; several kinds of explosive satchel and carton "bombs." Methods of safely approaching and removing saboteurs' high explosives are shown; problems of guarding railroads, ships, and warehouses against sabotage illustrated. An important film for all auxiliary fire and police personnel, the film is of particular use for plant protection and security teams.

YOUR ARMY IN DISASTER RELIEF. 1948. 17 min. For loan at Army Film Libraries as MISC 7546. Signal Corps film features the Texas City disaster, shows how emergency medical, relief, and welfare functions were set up there, and the part the Army played. The picture is valuable as illustration of a large-scale USA fire comparable to fires which will be created during air raids on American targets. Excellent for background information for CD personnel in all categories.

RADIOLOGIC SAFETY (AT) OPERATION CROSSROADS. 1946. 25 min. Color. For loan to special groups † from Army Film Libraries as MISC 1396; also from Navy Film Libraries. Navy film illustrates the several kinds of radiologic detection methods used at Bikini to measure and evaluate the radiation effects of the air and water A-bursts. Useful especially to CD personnel concerned with radiologic safety as background information.

ATOMIC ENERGY. 1950. 10 min. For rental or purchase at Encyclopedia Britannica Films Libraries; for rental at most A-V dealers. Produced by Encyclopedia Britannica Films, the picture is exclusively concerned with the nature of atomic energy. It explains, in diagrammatic ways, nuclear fission, atomic energy as compared to radiant and chemical energy, mass-energy relationships. Useful for background information for CD personnel concerned with radiologic safety.

U. S. Navy Film Libraries should be contacted via District Public Information Officers in Boston, Mass.; Norfolk, Va.; San Francisco, Calif.; Great Lakes Training Center, Ill.; Balboa, Canal Zone; New York, N. Y.; Charleston, S. C.; San Juan, Puerto Rico; Seattle, Wash.; Kodiak, Alaska; Philadelphia, Pa.; New Orleans, La.; San Diego, Calif.; Pearl Harbor, T. H.; Washington, D. C.

Encyclopedia Britannica Film Libraries are located in New York, N. Y.; Boston, Mass.; Chicago, Ill.; Atlanta, Ga.; Dallas, Tex.; Birmingham, Mich.; Pasadena, Calif.

Castle Films libraries are located in New York, N. Y.; Chicago, Ill.; San Francisco, Calif.

A-V is the abbreviation for audio-visual. There are nearly 1,000 A-V dealers who handle 16 mm. film rentals and sales.

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* A continuation of "New Approach Needed for Civil-Defense Training," which appeared in THE AMERICAN CITY for May 1951, p. 81.

† Films "for special groups" may or may not be restricted against showing to CD personnel. Directives from army GHQ can come at any time, taking such films off a restricted list; hence, if the film libraries cannot release them now for general public screening, try again later.

Which is the better way, Mr. City Official—

A Room to Die In

By H. DUEY HOFFMAN

IN THE present emergency, and with forethought for a future either of war or of peace, officials in most cities must face the interlocking problems of hospitals and housing.

Washington, D. C., is tackling this job in a way that may offer helpful suggestions for other cities. The problem of overcrowded hospitals is being worked out by: (1) a program of multi-screening for the 10 most common diseases that send people to hospitals, and (2) rehabilitation of as many bed patients as possible to get them back on their feet, into their homes, and perhaps back on the job. In other words, slow down the entrance by early diagnosis and early medical treatment, and hasten the exit by early rehabilitation — physically, mentally, and vocationally.

Two years ago Washington pioneered in a mass screening test to discover the unknown cases of tuberculosis, the disease in which the city ranked second in the United States. Over half a million persons took the test voluntarily, and over 7,000 unknown active cases were discovered. The educational value of this screening was an important by-product.

This screening test was followed by one to find the unknown cases of diabetes, a disease once fatal but which can now be brought under control when discovered early. About 9,000 unknown cases were discovered, and those affected were advised to see their physicians.

Aid from Vocational Therapy

In March 1950, Dr. Bernard J. Walsh, chief cardiologist of the District of Columbia Health Department, told doctors, therapists, and social workers, at a meeting on heart-disease rehabilitation, that there are 1,500 bed and chair-bound victims of heart disease who might benefit by vocational or occupational therapy. In this number is included only those of working age. None of the hundreds of children were included, who are suffering from heart disease caused by rheumatic fever. It was pointed out that in one hospital in the city there were 230 patients in the heart clinic, and 300 others suffering from high blood-pressure. Of the total 530, only 175 were self-supporting, with the city responsible for the others and possibly for their families.

A test case demonstrated the possibilities of rehabilitation even after prolonged illness. Thomas J. ..... was an 80-year-old heart patient lying on a hospital bed, blind and miserable. A doctor and a nurse talked him into a willingness to start a new life. In a wheel chair he learned to move up and down the hospital corridor. Cataracts were removed from both of his eyes. Soon he was able to go home under a home-care medical program with a visiting team of doctor, nurse, therapist, nutritionist, and social worker at a cost of $3.50 a day to the city instead of $12 a day. Board and room were provided by his family, with public assistance of $2 a day. In his wheel-chair he went around the neighborhood greeting friends he never expected to see again. Now he has improved so much that he can walk to the store, to church, and to the neighborhood health clinic. If such a miracle can happen with delayed rehabilitation, what might have been saved to the city by early action, to say nothing of the patient's comfort and happiness?

In April 1950 the District of Columbia Health Department began plans for the city's "multiphasic screening"—the latest development in the early detection of disease. It is a sort of medical assembly line which tests for tuberculosis, heart and blood diseases, diabetes, syphilis, some types of cancer, nutritional defects, kidney diseases, hearing and sight defects, and blood types. Ten persons can be tested for 10 ailments in an average of one-half hour. The tests give only warning signs of disease, but persons with positive tests are advised to see their doctor for definite diagnosis and treatment.

By this method, if carried out in every city, millions of people can be made aware of latent or hidden chronic illness and physical defects much sooner than they would be otherwise. Most of them would never need to occupy a hospital bed as a chronically ill patient. The idea is early catch, early cure, a variation on an ounce of prevention is worth a pound of cure.

A Pilot Program

Eight months passed before the plans were worked out to the operation stage. When the program is in full swing, Gallinger Municipal Hospital will examine about 300 a day for detectable diseases, using the assembly-line method. Included are not only ambulatory hospital-admissions and emergency cases, but patients going to the hospital's out-patient clinic. Also included are city food handlers, industrial groups, District of Columbia government employees, school children, and wards of the welfare agencies. Dr. Mary Elizabeth Kent, a medical officer of the United States Public Health Service, is in charge of this pilot program, which will be noted with interest by the officials of other cities.

The whole program has been concerned with slowing down the increasingly rapid procession of persons whose illnesses have become chronic, perhaps acute, and who thus require hospital-bed care. Early discovery and treatment may keep them on their feet and perhaps on their jobs. Late discovery may be exceedingly costly to their families or to the taxpayers, to say nothing of the tragic effects on the patient's body, mind, and spirit.

Active Rehabilitation Introduced

In mid-September 1950, Dr. Joseph A. Fazekas, Chief of Staff at Gallinger Hospital in Washington, announced a pilot program for rehabilitation of the chronically ill patient. There are 1,300 beds there, of which 1,200 are occupied by these patients. Many of them have been there over a year. Of these, 20% can be returned to gainful employment, Dr. Fazekas states.

For example, the City of Washington is spending over $48,000 a year for 11 patients paralyzed from the waist down, according to a survey made by Dr. Donald Covalt, of Bellevue Hospital in New York City, last spring.

"Little is being done to fit them with braces, to teach them how to take care of themselves, to walk or to travel (by car, bus, or streetcar). There is no vocational-counseling service to assist them in learning and finding a trade which they can carry out in terms of their ability," reported Dr. Covalt. Unless this is done the city will have to continue this annual cost of $48,000 a year indefinitely. On the other hand, paraplegics such as these in every city have demonstrated their ability to be self-supporting if given a chance.

Dr. Fazekas, in a statement, "Rehabilitation a Community Responsibility," calls attention to a recent report from the State of Virginia's Department of Vocational Rehabilitation, which is based on the work done at the Woodrow Wilson Rehabilitation Center at Fishersville, Va. This report states: "At an average per capita cost of $432 during the 1949-50 school year, 1,281 disabled persons completed re-

Or to Live In?

habilitation training and went to work at wages aggregating $1,748,700 a year." The cost of maintaining these people as invalid public-charges, Dr. Fazekas points out, would have exceeded $2,000,000 annually. By rehabilitation, the State of Virginia has not only saved seven-eighths of this annual cost, but was also relieved of financial obligation toward 2,187 dependents.

Dr. Josephine J. Buchanan, Director of Medical Services at the Woodrow Wilson Rehabilitation Center, states in her report of the work being done there, that "the ultimate aim is to give every individual the highest functional ability with which to earn a living, and with which to enjoy living."

Assigned to Gallinger Hospital by the Chronic Disease Division of the United States Public Health Service to develop the program there, Dr. Buchanan stresses that "not every patient can be rehabilitated. The patient must have the desire to learn a new job, the coordination to do the job, and the necessary intelligence to follow instruction."

As she talked, a paraplegic patient wheeled himself in his chair from the hall to the side of his bed, lifted his paralyzed legs, placed them on the bed, and then pulled himself onto the bed, straightened his legs, and relaxed, ready for the next part of his rehabilitation program. He is a 35-year-old government employee who lost the use of his legs recently because of a tubercular spinal condition of long standing. Admitted to the hospital the month before, under the rehabilitation program, he has improved amazingly. The employment counselor informs him that when ready, he will be permitted to return to his job in the Federal Government by arrangement with his supervisor. He has a family to support. He will be ready for home care as soon as his braces are fitted, and he has learned how to care for himself. This includes being able to travel by public conveyance.

Three Essential Steps

According to Dr. Fazekas, three steps are necessary in a rehabilitation program:

1. Immediate treatment (surgical or medical) of the injury or disease, so that further progress will be arrested and maximum function will ultimately be regained.

2. Physical restoration, including appraisal of capacity and willingness to work, physical therapy, occupational training, and prosthesis (artificial parts of the body—leg, hand, eyes, etc).

3. Sociological restoration, including vocational guidance and placement, and guaranteed security for the family during the training period.

Large-City Vocational Rehabilitation Centers

Many large cities have a vocational rehabilitation center, an employment agency, a public-health department, and a welfare department. Some have a housekeeping-aid service for sick mothers of families or people living alone. All of these services are used in the home-care and rehabilitation program.

A patient from Gallinger Hospital, when returned to his bed in his home, is visited by the doctor and the nurse as often as necessary. They talk over the case with the family, calming their fears and getting their cooperation. The wife or mother may be nervous but assurances that she may call upon them at any time, night or day, gives her self-confidence so that after a day or two she will find their visits sufficiently reassuring. The social worker can be of great help where the doctor and nurse leave off. She is a good advisor on budgeting family resources and can give needed information and helpful suggestions.

The nutritionist can work wonders in suggesting the most nourishing and cheapest foods not only for the patient but for the whole family, especially where there are children or old people. For example, powdered milk at 35 cents a pound makes 5 quarts of milk, tasty and nourishing, at 7 cents a quart instead of 22 cents.

When the patient is up and around he can go to the out-patient clinic of the hospital, where his medical needs can be served. When he gets a job, or returns to the one he had, he can visit the night clinic if he is in need of further medical treatment. Established only a year ago, this clinic has already saved the city thousands of dollars.

For example, in the month of December 1950, more than 600 chronically ill persons, unable to pay for their own care, were treated at the night clinic established in southwest Washington, an area occupied by low-income families. Dr. John Pate, the director, says all of them had been at one time hospitalized at Gallinger at public expense.

Patients released from a hospital bed for "home care" treatment must have a suitable home to which they can go. This means a room or at least a bed of their own, an indoor toilet, running water, and central heat. "Without these, their recovery may be delayed. The illness or injury must be one that does not require services which only a hospital can give. But when a patient has progressed to where he needs only daily injections of a diuretic, or wound dressing, or physiotherapy, he will get well faster at home than he will under the rigid discipline of the hospital.

"Such operations, if extended, could result in significant savings to the community as well as to the patient," says Dr. A. L. Chapman, Chief, Division of Chronic Diseases of the U. S. Public Health Service. "They might also reduce the need for extensive hospital construction. If our population continues to age, as is predicted by the statisticians, and if these older people are going to suffer from chronic illnesses, any method or technique designed to reduce the need for extended periods of hospitalization will be welcomed by most communities and by most individuals."

These patients, however, who have no suitable home to which they can go, may be confined for a long period to a hospital bed which costs $12,000 and up to construct and equip as part of a hospital. The cost to the community may be $12 to $20 a day per patient. Many older patients have exhausted their resources and that of their families, or have incomes too low to pay even part of the cost.

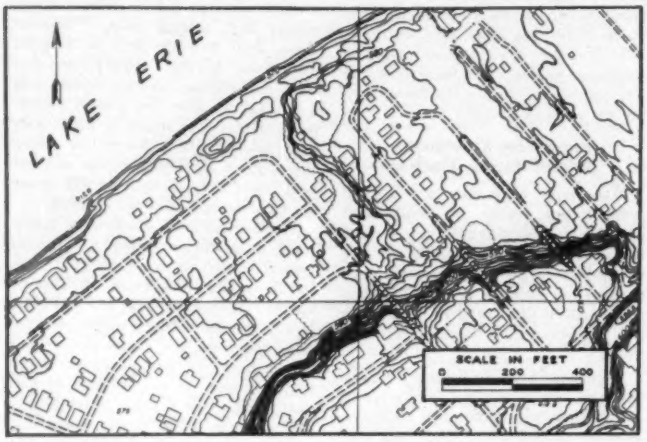
Cost to Community

Doctors say that it would cost the community much less to provide these old people with a room to live in rather than one in a hospital to die in. "Home care" treatment at an average of $3.50 per day in a small but adequate dwelling is much preferred by the patient and less costly to the city than hospitalization. Even if the city had to provide public assistance, money would be saved. Given a chance, most people, even old people, prefer to look after themselves as long as possible; visiting services facilitate this.

Getting people out of slums and out of hospital beds by providing housing adequate for their needs would be one of the greatest money-saving measures ever undertaken. At the same time it would be a great kindness, preserving, as it would, the dignity and worth of human beings.

Airmaps Simplify

Small-City Planning



This type of map is the finished product. Observe the contours, which are placed to 2-foot intervals, and other accurately located topographic details.

Eastlake, Ohio, makes an aerial survey before beginning a comprehensive drainage-sanitation program

By WILLIAM L. HAVENS
Havens and Emerson
Cleveland, Ohio

FREQUENTLY city officials and the engineers they retain must try to solve problems which have been created by decisions made many years before. This will not be so in Eastlake, Ohio. This village, soon to become a city, will be able to avoid mis-directed decisions because the planning and subsequent improvements will be based on the thoroughness and accuracy of a modern aerial survey.

Location Means Rapid Growth

Eastlake is a small, rapidly growing community located in Lake County, Ohio, about 6½ miles east of Cleveland. It covers about 6.7 square miles, with 4 miles of frontage on Lake Erie and a southerly boundary along the Nickel Plate and New York Central Railroads. It will be the site of the new $100,000,000 generating station of the Cleveland Electric Illuminating Company, and its excellent industrial location promises that its 1950 population of 7,460 will grow substantially.

In 1948, Eastlake incorporated to form a village. Two of the main reasons in favor of incorporation were the lack of sewerage and drainage facilities, and the inability (as township area) to obtain proper zoning restrictions.

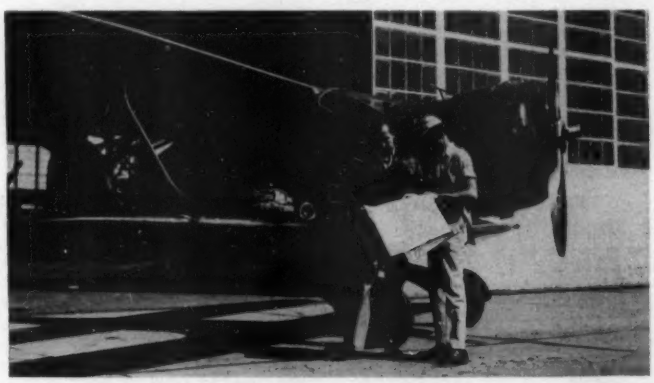
After incorporation, Public Law 352 helped to solve these planning problems. Under this law, federal funds totaling $96,388 were obtained from the Bureau of Community Facilities of the General Services Administration, at Washington. This money became available in July 1950 to Eastlake as government aid for the advance planning of non-federal public works. The law sets forth that the money will be lent without interest to political subdivisions for planning worth-while projects. The loan is to be repaid after the project has been financed and as soon as the first construction contract is awarded.

Gives Drainage Data

In contrast to the majority of applications by villages and cities where topographical field information was already available, Eastlake's request included a figure of $28,488 for aerial surveys. Like most unincorporated areas, little field information was available in Eastlake to show the present development or topography of the community. Of course, this basic field information was necessary for planning sewerage improvements. Much of the area is flat, and future drainage limits are not well defined. Moreover, sewerage facilities were almost totally lacking; the residents depended on septic tanks, and surface water was discharged to a few small drains or to county drainage ditches.

The remaining $67,900 of Eastlake's loan, then, covered the costs of developing comprehensive plans for sewerage and drainage. Also covered were costs for the detailed design of improvements estimated to cost in the neighborhood of $1,800,000.

As soon as these federal funds became available, the village contracted with Aero Service Corporation of Philadelphia to make aerial photos and compile topographic maps for the entire area. Horizontal and vertical controls were to be tied in with similar surveys made previously by the Phila-



The pilot and photographer make a final check before the take-off.

delphia company for Cuyahoga County. It was stipulated that the finished maps, to be delivered as inked linen tracings, would be prepared to a horizontal scale of 1 inch equal to 200 feet, with 2-foot contour interval. It was also specified that 90% of all points be accurate within one-half contour interval, and that the maps show all existing streets, buildings, and works of man, as well as water courses.

Aero Service delivered the maps to the village, and work upon the development of comprehensive plans for sewerage and drainage is now under way in our offices. While there has been little opportunity to check the accuracy of the air survey, there is every reason to believe that the maps will be as dependable for our purposes,

Field crews use precise surveying methods for ground-control work. The short-wave radio makes for easy coordination between the crews.

as were the maps delivered to Cuyahoga County. On a number of test profiles by Cuyahoga County, the maps proved to be accurate within 95.4%.

Air surveys were authorized by Mayor John M. Barrett and the Council of the Village of Eastlake. The cost ran to $6.60 per acre.

Obviously, these maps will be helpful in the planning of other city improvements. They will be used in studies for transportation, water supply, and for selecting areas favorable for residential and industrial development, water-main extensions, and related problems of city planning and growth.

After the comprehensive plans for drains and sewers are completed, the Village Council will determine the extent of the improvements needed immediately. A bond issue covering this specific project will then be submitted to the voters. If the vote is favorable, bonds will be sold and the loan repaid to the government.

Salaries of Municipal Officials: 1951

Title of Official	Cities with Population of 25,000 to 50,000			Cities with Population of 100,000 to 250,000		
	Average Salary	Lowest Salary	Highest Salary	Average Salary	Lowest Salary	Highest Salary
Mayor (non-manager cities)	$5,030	$3,000	$10,000	$ 7,992	$ 4,800	$15,000
Mayor (manager cities)	842	.....	4,800	2,040	.....	6,000
City Manager	9,302	4,800	15,912	15,869	11,000	20,000
City Clerk	4,435	2,280	10,260	5,263	3,000	8,000
Director of Finance	5,130	3,000	8,100	7,206	5,000	12,000
Controller	4,743	2,940	8,736	6,208	3,000	9,000
Auditor	4,296	2,100	7,200	5,593	3,600	8,000
Treasurer	4,298	2,400	7,500	5,720	3,600	9,000
Engineer	5,243	2,800	10,260	6,750	4,200	10,560
Director of Public Works	5,258	3,000	10,600	7,043	4,320	15,000
Superintendent of Streets	4,161	2,400	7,500	5,074	3,600	7,000
Fire Chief	4,496	2,760	7,208	6,871	3,692	8,400
Police Chief	4,595	3,111	8,352	5,909	3,692	8,400
Planning Director	4,809	3,600	7,500	5,996	3,720	8,500
Chief Personnel Officer	4,627	3,300	6,324	6,529	3,300	8,196
Attorney	4,296	2,000	12,240	7,175	2,400	15,750
Health Officer	4,408	2,100	14,376	7,479	3,840	12,000
Superintendent of Parks	4,009	2,040	8,040	5,259	3,300	9,000
Recreation Director	4,413	3,000	7,100	5,155	2,700	8,000
Librarian	3,851	2,100	6,200	5,796	3,840	9,000
Superintendent of Schools	8,417	5,000	14,000	11,079	7,800	15,000
Purchasing Agent	3,776	2,370	5,700	5,461	2,900	8,280

THE 1951 edition of the *Municipal Year Book*, to be published this month by the International City Managers' Association, will carry detailed tabulations of the salaries of the various categories of municipal officials in six population groups. From advance information furnished by ICMA to THE AMERICAN CITY, the accompanying tabulation of salaries for two of these groups is presented above.

In an introductory note to its tabulation of salary data, the *Municipal Year Book* explains that:

The salary data for selected administrative officials in the above table are based on information supplied early in 1951 by municipal officials. . . .

Every attempt was made to exclude from this table salaries of part-time officials, those paid in whole or in part by fees, or who receive a nominal sum such as $1 per year, and other such special cases, although this was not always possible on the basis of information reported. All salaries below $2,000 were excluded to avoid including the salaries of part-time officials in the average and distribution, except in the case of the mayor in council-manager cities. The mayor in such cities is generally a part-time official and his salary is usually a nominal sum, often below $2,000, and not at all comparable with the amounts shown for the other positions. The salaries of attorney and health officer are included whether designated as part-time or not, as long as the salary is not below $2,000 as a minimum, because so many of these officials customarily carry on private practices while holding public office.

In cases where an individual held more than one position, the total salary received from the several positions was considered and this salary classified under the first of his positions as shown in the table; for example, if an individual was reported holding the positions of city clerk, treasurer, and purchasing agent, he was classified as city clerk, and the total salary was included under "city clerk." Cost-of-living bonuses were included where known.

Some interesting comparisons can be made between the rank order of average salaries of selected officials in the several population groups. City managers and superintendents of schools are the two highest-paid positions in all but the first population group (cities over 500,000) where the superintendent of schools is first and the mayor second. Also in the population group of cities over 500,000 the attorney is third and controller fourth; in the 250,000 to 500,000 group, the health officer is third and attorney fourth; in the 100,000 to 250,000 group, the mayor is third and health officer fourth; and in the 50,000 to 100,000 population group, the mayor is third and director of public works fourth. In the population groups, 25,000 to 50,000, and 10,000 to 25,000, the director of public works, engineer, and director of finance follow the city manager and superintendent of schools.

Going to Britain This Summer?

PLANNERS and municipal officials from the United States who intend to visit Britain this year may be interested in a motor-coach tour to be conducted by the British Town and Country Planning Association, from June 30 through July 14. The tour will include Festival sites, a New Town, a Garden City, County Planning Office, Oxford, Cambridge, Stratford, Bournville, the Peak District, North Wales, York, and Lincoln. The total cost for 14 days is 35 pounds. Further information and applications may be obtained from the Business Secretary, Town and Country Planning Association, 28, King Street, London W.C. 2, England.

M unicipal
P ublic
R elations

The City Tells Its Story

By HENRY DAVIS NADIG

Executive Director, Association of Municipal Public Relations Officers

MPR questionnaire: preliminary report

SOME 400 questionnaires have been returned in the 1951 survey on municipal public relations being conducted by the Association of Municipal Public Relations Officers in cooperation with THE AMERICAN CITY. This indicates to date about a 32% response. But with returns still trickling in, it is hoped that we may reach and possibly beat the 44% return registered in the first survey three years ago.

By the time you read this the results of the survey will be in the process of tabulation for presentation graphically in this column. In the meantime, however, it can be reported that the interest in MPR is continuing to rise. This is indicated by the notes made on the reverse side of many of the questionnaires and by the comments in various letters returned with questionnaires.

Notes and Comments

These notes and comments from all parts of the country show what is being done specifically and indicate a real concern on the part of many municipal officials about their municipal public relations. Among those that are reported here you may find something stimulating and applicable to your own situation.

Personnel Director W. Terrel Blodgett of Austin, Texas, sends along a copy of the first issue of their employee newsletter and reports:

"The personnel department was hoping to begin an employee newsletter sometime this year after the completion of our job-evaluation survey, but had not counted on the interest of the administrative assistant to the City Manager in such a project. B. H. Cruce, now holding that position and formerly city manager at Georgetown and Edinburg, Tex., has been interested for some time in such a move and has gone ahead with a trial issue which we hope will become a permanent fixture in our city. The printing cost of 2,500 copies was $57. The newsletter highlights several changes in our municipal retirement system."

Mr. Blodgett adds that his department will publish a leaflet explaining fully the changes in the ordinance.

City Manager Samuel E. Vickers of Long Beach, Calif., reports:

"Of particular interest is a film produced in its entirety by the Police Department for promoting traffic safety. The script was prepared by the Police Department and the filming was done by a local cinema club. The production is all in technicolor and has sound. Because scenes in the picture are local and recognized easily by the public, the film is particularly effective.

"In-service training programs have been initiated in employee safety, public relations, and supervisory training. These courses are conducted under the direction of the Personnel Director by a staff assigned from the City College.

"A certain amount of public relations is accomplished by the Auditorium, Stadium, Convention, and Publicity Department, which operates on an annual budget of $175,000, in addition to $25,000 appropriated annually to the Convention Bureau. While most of the energy of this department is directed toward the operation of the two facilities mentioned in the departments named, the attraction of conventions to Long Beach and the publicizing of the community throughout the state and nation, considerable time is devoted to the promotion of local events such as open houses, dedications, receptions, etc."

MUNICIPAL

INTRODUCING THE MUNICIPAL NEWS

MAKING THE PUBLICATION

PENSION BENEFITS INCREASED

First-issue copy of the Austin, Texas, new local-government-employee publication—a busy little 4-page leaflet.

From Grafton, W. Va., City Manager A. Page Lockard writes that the manager system has been adopted there only recently and they have not as yet reached the point where they can give very much attention to any planned public relations. "I recognize its value and hope we can soon have included in our budget a beginning plan," Mr. Lockard writes, adding that "our newspapers have been extremely helpful and probably have relieved us of much that otherwise would be our problem even now."

Even though Bryant Horne, Personnel Director at Jackson, Miss., has checked off a good portion of the items in the questionnaire, he comments that he would like to do a better job with public relations—an example, as pointed out above, of the heightening appreciation of the importance of MPR. Incidentally, Jackson turned out a nice little annual report, well illustrated.

Down in Jasper, Ala., City Manager R. Powell Black is apparently moving right in on MPR, having been appointed January 2. He promptly began a series of articles in the weekly paper and scheduled the first open house at City Hall for April 28. He is also planning some tax leaflets. He adds: "We have just passed our first municipal budget in Jasper's history. We plan to continue with our public relations and within a year hope we can check off more items on such a list as this."

From the small municipality of Holton, Kans., we have this stimulating statement: "We consider every man employed by the city a public-relations employee. Through speeches, articles in newspapers, and personal contact with a greater percentage of the people than would be possible in a large city, we attempt to carry our story to the people." This indicates a real MPR consciousness on the part of City Manager James W. Bibb, Jr.

Town Manager Preston C. King of Boothbay, Maine, notes that public-relations work in Boothbay has been rather limited but that a sum is ap-

propriated annually to advertise the Boothbay region to people all over the United States. Mr. King adds: "We hope to do more on a PR program directly related to town government this year."

Town Manager Richard G. Marden of Ashland, N. H., reports that he writes a weekly newspaper column detailing all municipal activities. He also sends out a leaflet with water bills.

F. W. Sharp, Administrative Officer at Pomona, Calif., notes that the city government holds special meetings with citizens to acquaint them with municipal problems.

From San Mateo, Calif., K. A. Baldwin, Assistant to the City Manager, writes that San Mateo has prepared a 45-minute technicolor sound movie entitled *Your City in Action*, which depicts the operation of all city departments and boards. He notes that it has been shown to more than 40 civic organizations, including churches, schools, clubs, and other organizations.

Howard H. Schmidt, Administrative Assistant at Berkeley, Calif., has the following to say:

"The most significant new procedure in public relations of the last year was the participation of representatives of civic groups in the development of the city budget. The Chamber of Commerce, the Junior Chamber of Commerce, the League of Women Voters, and the Alameda County Taxpayers Association were asked to designate representatives to sit in on departmental budget hearings. Usually different persons were designated to participate in different hearings. The citizens obtained a clear understanding of the basis upon which a city budget is developed and, in turn, the city obtained from them many valuable suggestions. Actually most of these citizens developed into ardent ambassadors for the city government. Letters of thanks and commendation were received from all of the groups."

On the questionnaire sheet from Mayor H. E. Bruce, of Mason City, Iowa, his secretary typed the following:

"The 1949-50 Annual Report was printed in newspaper format and issued as a supplement to the *Globe Gazette* of August 18. Much favorable comment was heard on this type of report, and, published in this form, a wider circulation was had than in previous years.

"The Mason City *Globe Gazette* covers every Council meeting, prints the monthly reports on the various city departments, and carries any other articles Mayor Bruce or the department heads suggest might merit publication.

"Last year several local school groups visited the city departments, as well as other out-of-city and state groups. Of special interest was the group of prospective city planners from Iowa State College, at Ames, (making a small invasion of Mason City) using our town as a basis for their study in city planning."

City Manager Oliver D. Comstock, of Council Bluffs, Iowa, writes us the following message:

"Relative to our weekly radio program for which time is donated by the station, we have covered the activities of all city departments, and the Mayor and members of the City Council have discussed current problems. We have devoted considerable time to our civil-defense program. Currently our city firemen are using the program to give lessons in first aid, with special emphasis on civil defense."

Radio programs are noted in an increasing number of cities. Brockton, Mass., for example, reported the broadcast of council meetings twice a month and a weekly program by Mayor Melvin B. Clifford. This is a 15-minute show called "The Radio Press Conference of the Air," on which the Mayor discusses local issues and answers questions submitted by listeners during the week.

An interesting letter comes from Arthur H. Rosien, Public Relations Officer of Anchorage, Alaska, who reports that the city instituted an MPR program in January of this year. He expects to go into an expanded MPR program, highlighted by a printed annual report which will get wide distribution, and to begin regularly scheduled radio programs on which the city will present matters of interest to the public.

City Manager C. Leland Wood, of Watertown, N. Y., writes a letter giving details on the various MPR techniques used in his city. These include a card on night street parking which is posted in hotels and public places; a tax leaflet, police cards, and off-street parking-facilities cards. Mr. Wood reports that a "municipal night" is held once a year to exhibit the city's motor-vehicle equipment and show what activities are carried on by various municipal departments; a Citizenship Day for youth, a 15-minute radio program once a week by the Safety Council and the Police Department, frequent meetings between the Police Department and parent-teachers associations, a Recreation Department film and a 30-minute movie of various departmental activities which is shown to service clubs and other groups.

City Manager L. P. Cookingham of Kansas City, Mo., explains in detail how public relations is handled in his city. Mr. Cookingham writes this:

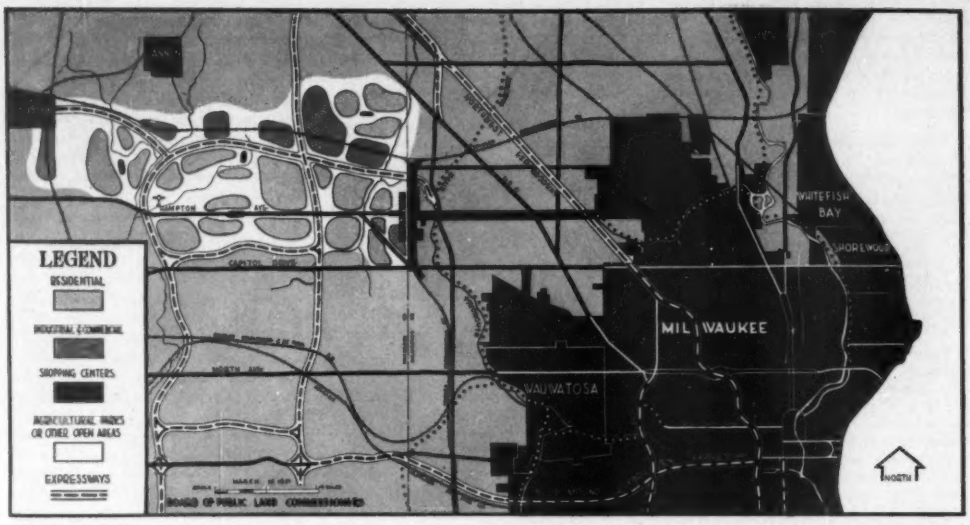
"Responsibility for developing and coordinating a public-relations program for Kansas City has been vested in an administrative Public Relations Committee made up of city-department heads, with Dr. Hayes A. Richardson, Director of Welfare, as committee chairman. There is no separate public-relations agency used for the city government as a whole or in any of its departments. However, the Research and Budget Department is responsible for preparation of the annual report and does most of the editing and publishing of the various miscellaneous public-information pamphlets and related materials. The Research and Budget Director is a member of the Public Relations Committee. As an example of the type of thing the Public Relations Committee is working on, plans have been formulated by the committee for an employee's magazine or newspaper. Another subject for which recommendations have been prepared, but for which final action has not been taken, has been a program for recognizing good citizenship and exceptional service, both by city employees and the general public.

"Although no separate budget is established for Municipal Public Relations and no staff members are specifically assigned to this activity, I believe you can see from the extent to which the list in Item 3 has been checked that a considerable amount of staff time in various departments does go into public-relations activities."

Mr. Cookingham's letter is also highlighted by another interesting MPR development:

"One activity which I believe could come under the head of public relations, which is not mentioned in the check list, is the City Hall Speakers Club. This luncheon club meets twice a month, and its membership comes from the key positions in the various city departments. I mention it as being related, at least, to public relations, because one of its purposes is to give public-speaking training to those of our staff who, more or less regularly, address public gatherings. It also serves as a kind of speakers bureau for civic groups interested in securing a speaker from the city government."

San Jose, Calif., reports, through John B. Massen, Assistant to the City Manager, that the major public-relations effort benefiting the city government during the past year was Gold Feather Week, for which he was largely responsible. He sends along a complete, separate report of the Gold Feather Week activities showing the work put into the event on behalf of the city government.



Preliminary study for the planned growth and dispersion of the Milwaukee metropolitan area, as recommended by the city's Board of Land Commissioners. The proposal envisages the purchase by the city of 9.6 square miles in the northeastern part of neighboring Waukesha County, in which would be built a new, self-contained community. It would be designed for 50,000-75,000 inhabitants, be part of Milwaukee proper, connected to the city by expressways.

Milwaukee Coordinates Expansion And Civil-Defense Plans

THE questions before Milwaukee are now quite fundamental:

1. *How can we avoid stifling the city's growth by the formation of independent satellite communities?*
2. *How can we direct the growth of the city so as to reduce the costs of development of arteries, utilities, and other improvements?*
3. *How can we provide for reasonable security from air attack?*
4. *How can we gradually redevelop without doing violence to ordinary living patterns?*

Recently approved by the Board of Public Land Commissioners is a general concept for the long-range expansion of the city as an answer to the questions above. It is a plan which will cut city costs, keeping the tax rate down, and yet provide for the natural expansion requirements of the city. It has been the thought of Mayor Frank P. Zeidler, Director of Civil Defense, that city planning and the defense effort should work hand in hand in preparing plans to guide the community's natural expansion and dispersion of its residential and industrial areas.

The city has had an active annexation program for many years. The new plan shows how needed urban development of lands now in Waukesha County, west of the recent Hampton Road annexation (a long strip-like area), fit into the natural pattern of Milwaukee's expansion.

Council Resolution Adopted

A Common Council resolution, adopted April 11, 1949, authorizes the Board of Public Land Commissioners to acquire this large area of vacant land for community development. Under the Common Council resolution, it is intended that the city develop its own self-sustaining suburb. The city will annex the property and prepare and adopt a general plan providing for residential, business, and industrial areas; streets, parks and playgrounds, and school sites, using the plan illustrated above as a guide.

Deed restrictions, zoning ordinances, and other regulations will be prepared by the city to guide and control the development of the project. The city will make plans and provide water, sewers, and streets, just as it does now in the scattered, annexed territories. But by concentrating the improvements on a wholesale scale in one location, the city has better control, resulting in greater efficiency and lower costs in both the development and the provision of services as compared to the present practice of providing improvements in piecemeal, annexed areas. In fact, the present annexation program can be abandoned when the city concentrates its expansion and dispersion efforts upon this project.

It should be emphasized that both business and industrial land uses are necessary in creating a self-contained suburb. Excepting the illogical return of state income taxes to incorporated suburbs, a strictly residential commu-

By ELMER KRIEGER
Executive Secretary
Board of Public Land Commissioners
Milwaukee, Wis.

nity cannot support itself. Residential districts need the employment opportunities and the tax base of business and industry to be self-sustaining. Land uses of the project are, therefore, tentatively allocated as follows:

Residential	3,000 acres	or 4.7	sq. miles
Industrial	1,000 "	" 1.6	" "
Business	120 "	" 0.2	" "
Agricultural and open areas	2,000 "	" 3.1	" "
Total	6,120 "	" 9.6	" "

The 3,000 acres of residential area can provide homes for a population of 50,000 to 75,000, at an average of 17 to 25 persons per residential acre.

The City May Sell or Lease

When the land for the self-contained community is purchased and annexed, and the plans and regulations prepared, the city can sell or lease large areas to private residential and industrial developers. The city can install utilities and improve the streets in accord with prevailing demand. On the one hand, the cost of providing water mains, sewers, streets, schools, parks, playgrounds, and fire, police, and other services, represents a heavy financial outlay to the city. On the other, the cost of the raw land is a minor consideration as compared to the total cost of city improvements and services. It is, therefore, obviously desirable for the city to control its destiny by owning or leasing the land on which it must ultimately invest so much for city improvements and services.

The land in the planned community may be sold or leased to private developers and builders. This is intelligent cooperation between private enterprise and the city for the mutual benefit of the city, private enterprise, and the eventual property owner. No private developer seems to be in a position to acquire a large enough area for a self-contained community—no private developer will finance the installation of the utilities and street improvements. Neither will a private developer sponsor large-scale, long-range residential and industrial dispersion for defense. It follows that if Milwaukee wants to provide desirable sites for industry and housing, at the same time taking a positive step toward dispersion as a part of the defense effort, it must acquire the necessary land.

The Common Council's Annexation Committee is sponsoring efforts to secure new annexation laws in Wisconsin so that cities will be permitted to expand to keep pace with their outward movement of urban population. The Committee is also taking steps in requesting federal and state assistance in carrying out a program for residential and industrial dispersion as a part of the state and national defense effort.

For Municipal and State Aid to the Senate Crime Investigating Committee

QUITE LIKELY the unforgettable achievement of the Senate Crime Investigating Committee was the wide, popular television publicity during its investigation, rather than the able report issued on May 1. For even the best report so obviously depends for results on the backing of an informed public opinion, as well as on the characters of the enforcing officials—federal, state, and local. Without energetic governors and mayors who see honesty as the best ethical and political policy, conditions will remain as thus stated in the report:

Despite known arrests records and well-documented criminal reputations, the leading hoodlums in the country remain, for the most part, immune from prosecution and punishment, although underlings of their gang may, on occasion, be prosecuted and punished.

This quasi-immunity of top-level mobsters can be ascribed to what is popularly known as the "fix." The fix is not always the direct payment of money to law-enforcement officials, although the committee has run across considerable evidence of such bribery.

The fix may also come about through the acquisition of political power by contributions to political organizations or otherwise, by creating economic ties with apparently respectable and reputable business men and lawyers, and by buying public good-will through charitable contributions and press relations.

Gambling profits are the principal support of big-time racketeering and gangsterism. These profits provide the financial resources whereby ordinary criminals are converted into big-time racketeers, political bosses, pseudo-businessmen, and alleged philanthropists.

Suggestions for Federal Action

The following recommendations, though federal, are designed to aid all enforcement officers, local included, by breaking up the power of the racketeers. Their power is ready money, in the words of the Committee "fantastic in amount."

A racket squad should be organized in the Justice Department to clean the country of racketeers, gangsters, and organized criminal gangs by utilizing any lawful means available, including:

Stimulating local prosecutions by turning information concerning local criminal situations over to state and local authorities for action. Of course, in such cases proper caution must be exercised to avoid turning information over to corrupt officials or to officials who would use it for political advantages.

The Bureau of Internal Revenue should maintain on a current and continuing basis a list of known gangsters, racketeers, gamblers, and criminals whose income-tax returns should receive special attention by a squad of trained experts.

This [criminal] list should be supplemented by names furnished by all Federal law-enforcement agencies, by the racket squads of the Justice and Treasury Departments, and by names solicited from the leading state and local law-enforcement agencies throughout the country. Swift prosecution and punishment are deterrents to crime in the tax field as much as anywhere else.

The law and the regulations of the Bureau of Internal Revenue should be amended so that no wagering losses, expense, or disbursements of any kind, including salaries, rent, protection money, etc., incurred in or as a result of illegal gambling shall be deductible for income-tax purposes.

The penalties against the illegal sale, distribution, and smuggling of narcotic drugs should be substantially increased. Mandatory penalties of imprisonment of at least five years should be provided for second offenders. * * *

Seven suggestions are offered to state and local governments and to the people who elect the officials:

1. A committee might well be appointed in each state to make a thoroughgoing investigation of the problem of organized crime. [It noted noteworthy state action in California, Ohio, and Illinois, and the appointment of a crime commission in New York State.]

2. Grand jury investigations could well be instituted in every community in which wide-open gambling and racketeering conditions exist, so that local responsibility for such conditions can be fixed and determined.

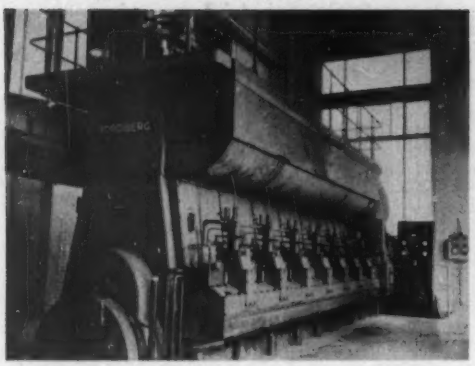
3. It might be advantageous for each state to institute a survey of law-enforcement agencies for greater cooperation between agencies and greater efficiency. The survey must consider combination of small local police forces into larger regional units, elimination of law-enforcement responsibilities of the sheriff's office, better policing of rural areas, elimination of the traditional coroner's office and substitution of a good medical examiner's office, extension of civil service and tightening of legal provisions to remove lax officials.

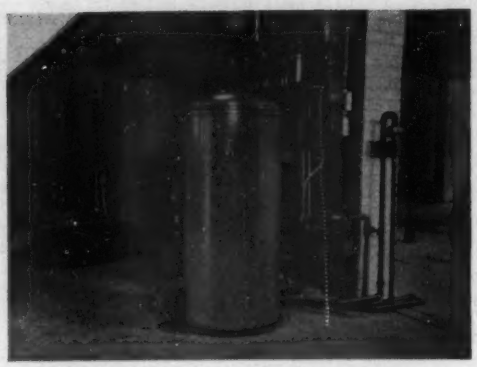
4. Organization of rackets and special purpose squads in each state, particularly . . . for suppression of the narcotics traffic.

5. Each state would do well to analyze the provisions of its criminal law and its sentencing practices, so as to make certain that deterrent sentences are imposed upon offenders engaged in criminal activities connected with organized crime.

6. Each state should consider legislation making it possible to control establishments which permit gambling on the premises.

7. A citizen crime commission charged with the duty of observing the activities of local law-enforcement agencies and with the duty of observing and reporting on local crime conditions would be helpful in each large community.





The latest addition to the power plant at Rensselaer is this 2,800-hp, 1,980-kw Nordberg diesel-engine generating unit. The alarm system is located on the operating panel and gauge board at the right of the engine. Above: The Honan-Crane oil purifier, day tank, and Blackmer auxiliary fuel-transfer pump are set at engine-room level.

Five Diesels for Rensselaer, Ind.

53-year-old municipal electric utility gradually changes from steam to diesel power; the transition started in 1924

Marley cooling tower, Burgess-Manning muffler, and American continuous air filter are located in rear of plant.

TWO YEARS before the turn of the century marked the beginning of municipal electricity in Rensselaer, with the purchase of a small boiler plant from local interests at a cost of $9,000. The half-way mark in the present century finds Rensselaer completely changed from steam to diesel power, with its fifth and largest diesel in operation.

The original plant consisted of a small tubular boiler and a 60-hp slide-valve engine belted to a single-phase, 133-cycle, 1,100-volt generator. The city continued to enlarge this plant as the country entered its present age of electricity, but by 1921, all could see that the existing reciprocating steam engine, with its 200-kw generator, was too small for the job. Both the operating costs and increasing demand for electricity had made their effects felt in this period of great development in electrical generation.

On the advice of a consulting engineer, the city decided to abandon steam and install diesel units for future expansion, and in 1924, the first step along this line was taken by the installation of the first Nordberg diesel, a five-cylinder, two-cycle engine with 550 hp and powering a 375-kw generator. Steam power, however, still had to be supplied for standby service and other duties.

Additions in 1928

In 1928, the load again reached a point where additions had to be made. In that year a second Nordberg went into operation. This also was of the air-injection, crosshead design, of 875 hp with a 600-kw generator. With its installation, the city abandoned all reliance on steam power and cut its fuel costs from 2.66 cents per kw-hr. to 0.8 cents.

Each time a new diesel went into operation, the city was able to reduce electric rates. This in turn encouraged a rapid growth of the load that the plant had to carry, particularly from electric ranges, since the city had no gas system. In 1932, a third diesel had to be installed. This was of the same make and type, but with a capacity of 1,425 hp and connected to a 1,000-kw generator. It required that the old building be replaced with a new one large enough to house the equipment. By 1940, a fourth unit was needed, this time a six-cylinder, mechanical-injection, 1,500-hp engine which brought plant capacity to 4,350 hp. And eight years later the city found it necessary to purchase its fifth Nordberg, this one having a capacity of 2,800 hp.

The latest engine has seven cylinders of 21½-inch bore and 29-inch stroke. It is of the mechanical fuel-injection type and operates at 225 rpm. It drives a 2,400/4,160-volt, 3-phase, 60-cycle, 1,980-kw G-E generator with a 25-kw G-E V-belt exciter. Normally it operates from 14 to 16 hours each day until the load drops to the point where it can be carried by one of the smaller units. In March 1950, the engine oper-

ated 444 hours, and generated 475,500 kw-hrs. on 36,440 gallons of fuel oil for a production of 13 kw-hrs. per gallon, with the engine carrying an average load of 54%. The lube-oil consumption for this period was 10 gallons in the crankcase and 126 gallons for cylinder lubrication, or a rate of 9,141 hp per gallon of lube oil.

The plant can receive fuel either by truck or by rail, delivered to two 26,000-gallon storage tanks. Fuel is drawn from them to an elevated inside storage tank by a Viking pump. From here, all five engines receive fuel by gravity flow to the engine day-tanks. The fuel flows through duplex Nugent filters and then to the fuel header from which the injection pumps receive their supply.

All engines have closed cooling water systems with soft water used both for cooling and jacket-water circuits. The four older engines have two atmospheric-type cooling towers of wood construction. The new 2,800-hp engine has a forced-air Marley tower of metal construction. Raw soft water from the tower is circulated through a CP Ross lube-oil cooler, then through a CP Ross heat exchanger by a 20-hp Allis-Chalmers electrifugal pump of 700-gpm capacity against a 70-foot head, and then back to the tower.

Air for Scavenging

Air for scavenging is brought to the engine by a gear-driven blower mounted at the flywheel end, and takes its suction through an American Air Filter Company continuous self-cleaning, curtain-type air filter having a capacity of 12,900 cfm.

A five-panel electrically operated G-E switchboard is located adjacent to the operating side of the 2,800-hp engine. This board has a tie-in panel to the main distributing board. A 60-cell Exide battery furnishes the energy for operating the board.

Since the plant is located in a residential section, within three blocks from the business district, near a high school, two public schools, a library, and two churches, quiet operation is of paramount importance. This silence is made possible by Burgess-Manning exhaust and intake snubbers.

The plant operates under the direction of Louis C. Ramp, Superintendent of both the electric and water systems. Mr. Ramp designed the installation of his newest diesel generating unit to be as independent of the rest of the power plant as is economically possible. The new unit has been installed at a higher level than the rest of the plant and without a basement floor. These improvements were the result of Mr. Ramp's experience with floods and deterioration of piping cooling waters.

Finance Officers Discuss Defense Economy Impact

LACTANCE ROBERGE, Director of Finance of Montreal, was elected president of the Municipal Finance Officers Association at its annual meeting in Dallas, April 23-26, attended by almost 800 finance officers from the United States and Canada.

Louisville Award

Recipient of the 1950 Louisville Award was Earl E. Hagerman, Director of Finance and City Accountant, Dayton, Ohio. First established in 1939 through a grant from the City of Louisville, Ky., the award is given for the most outstanding contribution to some phase of governmental fiscal work. Director Hagerman's award was on the basis of his establishment of a new system of property and cost accounting for Dayton's water department, which aided in reducing the 1950 water-works budget by more than $100,000.

Resolution on Financing Civil Defense

The impact of a defense economy on municipal finance received major attention during the conference. Following a panel discussion on current civil-defense problems, and a speech by Carl H. Chatters, executive director of the American Municipal Association, on "A Municipal View of Civil-Defense Finance," the finance officers adopted a resolution declaring that "the Federal Government has a primary responsibility in civil defense, the same as it has in other phases of national defense." The resolution continued:

"With respect to organizing and promoting civil-defense activity, Association members believe that the Federal Government should by-pass the states and deal directly with key target cities."

The Association's position on financing civil defense is this:

1. Local governments should pay for the personnel of local units, their personal equipment, local publicity, and the overhead costs of organizing for mutual aid.

2. State governments should divide equally with the Federal Government the cost of stock-piling materials and supplies. As long as the present law remains in effect, the states should also share the cost of a thorough training program with the Federal Government.

3. The Federal Government should stand the total cost of warning systems and medical stock-piles, and should share with the states the cost of mobile equipment and training.

Other new officers of the Association elected at Dallas are: E. Lynn Crossley, City Auditor, Dallas, Vice-President; members of the board of directors, Lewis F. Lang, Deputy Comptroller, New York City; Frank Hanrahan, Director of Finance, Cleveland, Ohio; John McQuilken, Comptroller, San Diego, Calif., and Lionel G. Ott, Commissioner of Finance, New Orleans, immediate past president of the Association.

Continuing members of the board who serve through 1951 are Wilfred A. Greene, City Comptroller, Westminister, British Columbia; Howard E. Munroe, Town Treasurer, Barrington, R. I.; A. A. Weinberg, C.P.A. and Actuary, Park Employees Annuity Benefit Fund, Chicago; and C. L. Beazley, Deputy Provincial Secretary, Nova Scotia.

Municipal Progress In Mississippi

MAYOR ALLAN C. Thompson of Jackson, Miss., reported at the Dallas meeting of the finance officers that cities in his state are getting on a sound financial footing, as the result of recent actions by the Mississippi legislature.

During the '30's, Mayor Thompson noted, Mississippi bonded indebtedness was retired and for several years the state built surpluses because it entered many new revenue fields—sales taxes were imposed, privilege taxes were increased, and amusement taxes were levied.

Action in 1948

However, the legislature did nothing to help the cities until 1948, when it appropriated $2,500,000 from its surplus to be distributed among them. Then in 1950, after a legislative committee study, the state took the following steps:

A new municipal code was adopted placing governing authority of all cities on a four-year term basis—all terms beginning three weeks after elections. This left little time for lame-duck activities by the council.

A uniform system for issuance of bonds and borrowing of money was inaugurated and the procedure for this issuance was simplified.

Larger cities were given authority to levy a ½-cent sales tax if their residents approved.

Since then, Mayor Thompson noted, six of the twelve eligible cities have adopted the sales tax. Jackson was the first of the group to do so, and its residents are "unusually enthusiastic." In large part, because of this revenue source, Jackson was able to overcome a $345,000 deficit in its general fund last year.

Los Angeles County Machine-Cleans Its Beaches

New bucket-elevator device takes the trash from seven miles of the county's shoreline

By B. P. GRUENDYKE
Director of Parks and Recreation
County of Los Angeles, Calif.

APPROXIMATELY seven miles of Los Angeles County beaches, varying in depth from 50 to 500 feet, will come under a clean-up program this year with a new machine made by Sanitized Beaches, Inc., of Aurora, Ill. Pulled by Diesel tractor, in this case an International TD-14, the Sanitizer can clean in an hour a 6½-foot swath, 1¼ to 1½ miles long—or 2,400 square yards. It cleans the sand, removing glass, tin cans, and hardened fire cinders, to a maximum depth of 10 inches. This will allow the cleaning of each of six beaches only two or three times a year.

When it is officially in operation, the machine will be stationed at each of six Los Angeles County beaches for from one to two weeks. This will be time enough to clean thoroughly even the largest beach areas—Zuma Beach and Redondo Beach, both of which are two miles long.

Pilot Model Tried First

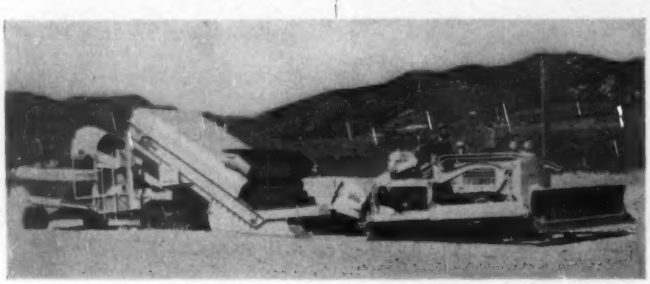
Last summer Los Angeles County leased a pilot model of the Sanitizer from its inventor, Vic H. Chatten, for about $9,000—which was credited to the price of the new $30,000 rig delivered last November. The pilot machine, built three years ago by Sanitized Beaches, Inc., has cleaned a total of 1,000,000 square yards of shoreline up to the present time.

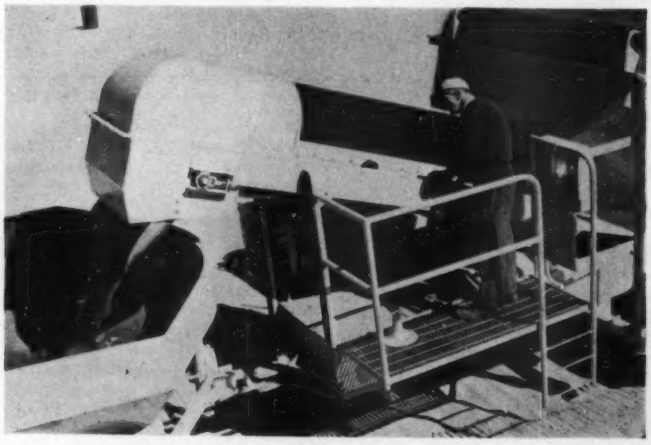
The complete beach-sanitizing set-up requires a tractor for motive power, the Sanitizer, and a 4-cubic-yard refuse trailer, rubber-tired, which is pulled behind to receive the debris. It requires one man to operate the Sanitizer properly and one man to operate the tractor.

The Sanitizer, in simplified description, consists of thirty-eight 5-foot buckets, built with three partitions each. A wire-mesh screen of any desired mesh is inserted in each bucket. The buckets move on manganese link-belts and the belt is geared to an International, 4-cylinder, overhead-valve gas engine. This engine is mounted midway on the Sanitizer. The buckets, moving on the belt at 120 feet per minute, scoop up the sand to a depth of approximately 10 inches. The buckets are then agitated, shaking loose sand through the mesh where it is carried to the cut, held open long enough to receive the sand. Debris remains in the buckets and is dumped on to a second belt, this one rubber finished, which carries the refuse into the 4-yard trailer pulled behind. The trailer has a bottom dump. The diesel bulldozer pulling the unit can dig a hole to bury the trash if desired.

Although the Sanitizer weighs 18 tons without the tractor or trailer, it rides evenly on even the finest sand. Athey tracks and 18-inch shoes are credited with achieving this over-all weight distribution.

A hydraulic jack, consisting of a two-way piston working from 500 psi, raises and lowers the front end of the Sanitizer and accounts for its deep bite. The hydraulic jack, likewise, is push-button controlled. Back of the push-button controls, which allow one-man





Above: The diesel-towed Sanitizer at work on Los Angeles County's Zuma Beach. Right: A man can be assigned to stand on the platform beside the debris belt to pick out valuables thrown up by the machine. Other refuse is carried into a 4-yard trailer.

operation, is a Kohler light plant which, while capable of supplying power for night-time working, also actuates solenoids which start up the gas-fueled engine and the hydraulic system. The Kohler is a 750-watt model.

The machine can be worked in semi-wet sand. A larger wire mesh is inserted in the buckets. The wire mesh can be changed to conform with the condition of the sand. While it takes some time for the operator to change mesh screens in each of the 38 buckets, the job itself is simple. Smaller mesh makes for greater screening efficiency in dry sand; for semi-wet sand, the larger mesh is inserted.

The 10-inch probing depth, while it is a boon to municipal beaches because deep cleaning means less frequent sifting, has somewhat limited the market for the machine, of which this is the sixth of its kind to be produced. For instance, Los Angeles County will probably find that it can get by with from two to three complete beach siftings a year, with a few infrequent siftings for special jobs. Special siftings could come up if a valuable item was reported lost in a specific area, or if extremely high tide or rough weather cluttered beaches. Since the county-owned Sanitizer has not officially been in operation, no forms for recovery of lost articles have been used. However, some system will be devised.

Here is a close-up of the removable screens. They can be varied to take care of different sand conditions.

Chief Chase of Miami on "Dispersal" During a Raid

To the Editor of THE AMERICAN CITY:

After reading "Fighting Mass Conflagration" in the May issue of THE AMERICAN CITY, I wish to make some comments and suggestions.

The first has to do with instruction of the public. The public must follow fire-prevention rules and regulations, and provide their homes with certain fire equipment. For it was found in London that often fire apparatus would be dispatched to manufacturing plants and warehouses whose contents were vital to the war effort, and pass by residence fires, even though the public was hollering for their services. I see no way to get around this point, and the public must recognize it and obtain equipment that can take care of the ordinary house fire. Incidentally, such equipment is not excessive in cost, and it is not much of a problem for the householder to extinguish a fire that is caught in its incipiency.

Yellow Air-Raid Signal

My second point has to do with "a yellow air-raid signal at 5:31, and at 5:36 the air-raid sirens sounded and the apparatus in stations is dispersed in accordance with plans." I wonder what would happen on your thoroughfares if sirens were to announce the arrival of enemy planes, etc. Will the fire department's trucks be the only vehicles permitted on the streets? No, and is it not quite reasonable to assume that there will be a tremendous amount of traffic on all streets, especially on those outbound? With this in mind, I wonder how much chance there would be to disperse your fire equipment. Personally, I think that there is practically no chance at all; and I am confident that the idea of dispersing equipment after an alarm is sounded is more or less ridiculous. I think that the dispersal, if it seems necessary, should be done long in advance of even the expectation of an attack.

Now let us check the time the bomb hit, which was 5:45, which means that there were nine minutes allowed; and again it seems to me that nine minutes would be too short a period to ever get your equipment, at least in any quantities, out of an area, and especially with the possibility that the area to which you would disperse would be the one that would be hit by the bomb. We have a similar experience, you might say, in the matter of our hurricanes. I know of several instances where people hurriedly left Miami and, unfortunately, ran right into the hurricane, which hit at a different point than predicted.

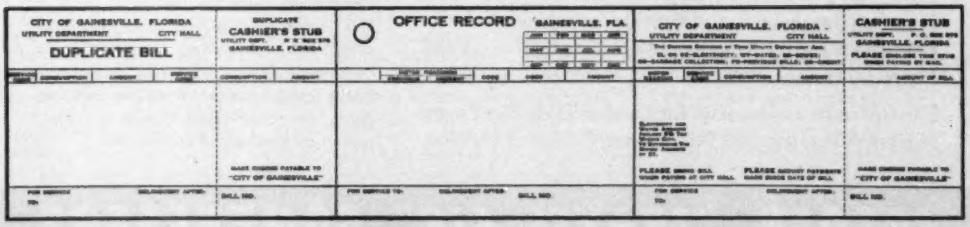
The article mentions "radio in service during entire period." I think it very important that our fire-department officials throughout the country realize the tremendous importance of having all of their vehicles equipped with two-way radio, and that the operation center be supplemented with mobile units capable of being dispersed even before an alert is sounded, so that constant communication can be maintained at all times. We can be pretty certain that radio will be virtually our only reliable method of communication.

Dangers of Radioactivity

As my final suggestion, I believe it would be well to confer with some of the scientists as to the dangers of radioactivity. Informed people tell me that the danger of radioactivity is negligible, practically speaking. In other words, if you survive that first flash of heat and the radioactive dispersement, then it is quite safe to go on working. Many chiefs that I talked to have been worried because we do not have geiger counters in our departments, and men trained to use them. If this equipment is not essential, and if the dangers from radioactivity are negligible, I feel that our fire service should be accurately informed, so that in the event of attack they won't get scared to death and head for the Everglades. As a whole, I think your article is very timely.

H. R. CHASE, *Chief*
Division of Fire
Miami, Fla.

Postcard Utility Billing in Gainesville, Fla.



Postcard bills of new water, light, and garbage billing system in Gainesville, are in three, equal, connected parts—the bill mailed to the consumer, cashier's stub, and office record. After being addressed and dated by Addressograph, and amounts printed by new Burroughs utilities bookkeeping machine, they are separated and mailed or processed.

Jaeger truck-powered compressor

costs $950 to $1000 less and takes 50% less maintenance than trailer-type compressors

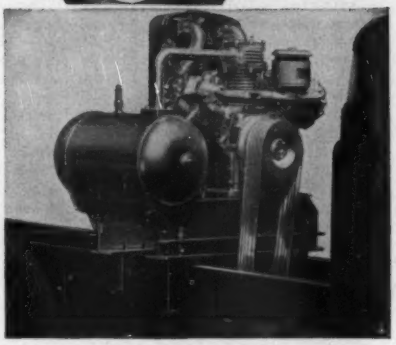
Delivers 125 cfm at 100 psi instead of usual 105 cfm; will run 2 heavy breakers at full pressure and efficiency.

Why buy and maintain an expensive compressor engine and trailer mounting while the engine of your service truck stands idle 7 hours out of 8?

With a simple power take-off, controlled in the cab, you can utilize that truck engine to produce all the working air your crews require—instantly available without waiting time to warm up.

Engine speed is automatically regulated to air demands. At about 1750 rpm compressing speed (equivalent to 24 mph on the speedometer) air delivery is 125 cfm—enough air to run 2 heavy pavement breakers or 3 medium duty breakers at full pressure which no 105 cfm compressor can do. Your tools will hit enough harder and faster to average 30% to 40% more work per hour.

For full information, send for Catalog TC-1. The Jaeger Machine Company, 505 Dublin Ave., Columbus 16, Ohio.



For Chevrolet, Dodge, Ford, GMC and International Trucks (1½ and 2-ton rated, long wheelbase current models)

Compressor unit is the famous Jaeger "Air Plus"—air-cooled, W-type, force feed lubricated—the largest selling compressor in the construction field.

Power take-off has only 4 moving parts—no gears, no power losses. Simple to install, proved on hundreds of installations.

JAEGER "TRAVEL-AIR" COMPRESSOR

Sold and Serviced by Distributors in 130 Cities of United States and Canada

Competition Is the Life of Purchasing

The author

By WILLIAM H. BUTLER, III
Purchasing Agent
Essex County
Newark 2, N. J.

WHEN ONE governmental purchasing agent starts to advise another, he immediately runs into certain established basic principles and customs. Then, too, in most instances, the state legislature has created a pattern which governs our methods in purchasing for the greater part of the budget allocated to "Maintenance and Supplies and Other Expenses." I refer to the formal bidding, of course, which limits our purchases of commodities in excess of $1,000 to the formal advertised bid, followed by resolution and contract.

What of the Balance?

But what of the balance of our purchases which are informal, over which no legislature has assumed control, and where the policy for procurement rests entirely with the purchasing agent or the governing body? It is upon this part of our daily work that I would like to focus attention. For with this portion of our assignment, we must be exceedingly careful. The purchasing agent who is on his own must at all times protect his governing body, which becomes the chief target when trouble brews because of any indiscretion or favoritism chargeable directly to him. Likewise, the governing body receives the blow when it interferes and instructs the purchasing agent to follow a course that is not consistent with good practice and flavored by political patronage. Sooner or later, in either instance, the "chickens will come home to roost"—and not they, but the taxpayer, will get it "in the neck." So without trying to be either puritanical or naive about political expediency—with which I am acquainted, having previously been elected to high political office—I will attempt to set forth some of the reasons why we have benefited in our county by good, wholesome, competitive bidding with no attempt made to limit the vendors to our locality or state.

Price Competition Necessary

Most purchasing agents swear by the basic law of supply and demand, and that competition is the prime factor in arriving at the terms on which we can or will do business with the supplier. If this competition is cut off for any reason, the buyer no longer retains control over the price. Having, of necessity, to purchase, he must do so at the terms of the seller. This defeats the purpose for which the purchasing department was conceived. It virtually eliminates its effectiveness. Price competition is necessary if the buyer is to retain his normal control over prices.

All of these problems simply lead up to the point which I hope to drive home—that nothing should be allowed to interfere with effective trade relations between buyer and seller. We, in governmental buying, have a double duty to perform: (1) to merit the confidence of the citizens responsible for our selection and, (2) to cultivate and hold the confidence of the vendor. The first obligates us to keep governmental expenses at a minimum. Yet failure to attain the second goal can cause a worse failure in the first.

How can we convince the vendor that we want to establish pleasant and profitable relations? My first answer would be to open up your vendors' lists to him regardless of his territorial location, to solicit his bid, and to play fair in all instances where he is the low bidder. He should be apprised of any minor regulations which affect him. In our county, for instance, every bid is awarded to the low bidder, except in cases where a tie exists, in which event the bidder located in the county is favored. This is our only restriction, which is of minor importance and readily acquiesced in by "out-of-town" bidders. The result is good competitive bidding and favorable prices. A further advantage of this fair policy is that rarely a day passes without special offers from vendors on over-produced, stagnant, or perishable commodities. These offers are gladly made to a governmental agency because the sellers know that the goods will not get into the general market and that dollars saved are reflected in the tax rate.

Broadens Supply and Service

With the confidence of the seller established, bids are received on scarce items which would never be located except for a broad vendors' list. Many times, and more and more, as chaotic conditions multiply, we breathe a sigh of relief when a group of vendors' bids collectively locates a 100% requisition list, and backlogs of unbought necessities are not accumulated. This service earns prestige for the purchasing department.

My final suggestion, therefore, is that where or when a governing body pressures the purchasing agent to buy from purely local dealers, the purchasing agent shows what it means in dollars and cents and in service to open bid lists to vendors everywhere who request the opportunity to bid.

Qustions That You Can Ask Yourself

If you are a member of the governing body, are your policies increasing the cost of government and reducing the service to your municipal departments? Bear in mind also that a closed policy can backfire, causing your local dealers to be excluded in other areas. Is it fair to ask your citizens to pay more tax dollars through closed competition? Would they like your explanation of the additional expense? The governing body for whom I work has never interfered in purchasing procedure and would not condone any plan on my part which would place any limitations on the bid list. Let's not create any further trade barriers. We have our work cut out for us to eliminate those already in existence.

Norfolk and Chester Adopt Housing Standards

NORFOLK, Va., and Chester, Pa., are among the several cities which have recently enacted minimum housing codes. Clarence G. Smedley, Director, Department of Public Safety, reports that the Chester code is based almost in its entirety on the Baltimore ordinance. The 10-page Norfolk ordinance, No. 15,137, is comprehensive in scope and carefully spells out administrative and enforcement provisions. It was adopted by the Norfolk City Council on April 17, and became effective May 17, 1951. Copies of it may be obtained by municipal officials without charge from R. T. Nichol, Administrative Assistant, Office of the City Manager, Norfolk 10, Va.

HERE'S HOW FOSTER SIRENS FOR WARNING SYSTEMS

FOSTER
TYPE 45
SIREN

Meet CD Requirements:

- **They are HEARD**
  125 to 130 decibels at 100 ft.—High enough to overcome a street or shop level of 70 to 80 decibels with plenty to spare. Non-directional.
- **They are RECOGNIZED**
  Sharp, distinctive howl is instantly identified as a warning.
- **They are ALWAYS READY**
  Start instantly in coldest weather. Simple and rugged mechanically with few moving parts. Practically fool proof.
- **They are VERSATILE**
  Require a steam supply of less than 1500 lbs. per hour at 75 lbs. pressure, available in most laundries, utilities, and industrial processing plants. Can be manually operated or solenoid operated and tied in with other units in the warning system.

Comparative tests show Foster Sirens are lowest in cost per square mile covered. They are simple to install and are low in operating and maintenance costs thereafter.

There are Foster representatives in principal cities. Ask for Bulletin 29.

FOSTER ENGINEERING Company

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PRESSURE REGULATORS ... RELIEF AND BACK PRESSURE VALVES ... CUSHION CHECK VALVES ... ALTITUDE VALVES ... FAN ENGINE REGULATORS ... PUMP GOVERNORS ... TEMPERATURE REGULATORS ... FLOAT AND LEVER BALANCED VALVES ... NON-RETURN VALVES ... VACUUM REGULATORS OR BREAKERS ... STRAINERS ... SIRENS ... SAFETY VALVES ... FLOW TUBES

Toledo Sewage Plant Plans for the Future

By A. H. NILES
Engineer-Superintendent
Division of Sewage Disposal
Toledo, Ohio

TOLEDO'S present sewage-treatment works, located at the mouth of the Maumee River, which empties into Lake Erie, represents the result of a number of sanitary-engineering surveys. They started in 1913, and continued until the plant was designed in 1927-1928. The accepted design, made by the H. P. Jones Company, of Toledo, now called Jones, Henry & Schoonmaker, anticipated a population of 600,000, and a mean flow of 80 mgd, with 140-mgd maximum high-water flow and 170-mgd maximum storm flow. It was also anticipated that some 15 years after the primary plant was put in operation, secondary treatment would be required. The plant was constructed in 1930-1931, and placed in operation June 8, 1932. It has now been in operation for 19 years.

Original Construction

The plant, as originally constructed, consisted of two mechanically raked bar screens; two 40-foot square Dorr Detritors, eight 90-foot Dorr traction clarifiers, each 10 feet deep; eight 85-foot-diameter and 29-foot-deep Dorr digesters with fixed covers and gas-collection and stirring mechanisms. The final plant effluent is chlorinated during the summer for bathing-beach protection.

Although somewhat overdue, according to the schedule mentioned above, the design to provide secondary treatment is now complete in time to provide the required purification. The supplemental treatment will provide, first, grease removal at the pre-aeration tanks. Pre-aeration tanks with grease skimmers will be constructed just beyond the detritors. The improvements also will provide sludge-concentration tanks to concentrate the solids from the supernatant return from the digestion tanks before going through the primary settling tanks. The effluent from the primary tanks will also receive aeration before passing to the aeration and re-aeration tank, and finally will pass through the final settling tank, where this effluent will be chlorinated in chlorine contact tanks before being discharged to the Maumee River or Bay at the new outlet. Two sludge digestion tanks, 100 feet in diameter, will be added to the present eight. These will be equipped with gas-holder covers, and all gas will be used in supercharged dual-fuel engines. Present plans call for four 1,235-hp supercharged dual-fuel engines, and generator units capable of operating on either digester gas or diesel-fuel oil. Two spherical pressure-type gas-storage tanks will be constructed to go with the necessary fuel-oil tanks and auxiliary equipment.

The design allows for no change in the present method of sludge handling, since this method is both efficient and economical. The digested sludge is pumped from the plant through a 10-inch force main to the sludge-drying beds a mile away. We have 12 drying beds, each measuring 20 feet by 162 feet, and covered by four separate greenhouses. The sludge pumped to these beds is dried to a moisture content of approximately 7% to 8%. It is later removed by hand and transported to the sludge-grinding and bagging area which is located in one end of the warehouse. Some 500 tons of sacked dried sludge will be stored, and marketed under the name "Tol-e-Gro." That portion of the digested sludge which cannot be dried on the beds because of our low moisture requirement, is pumped into an adjacent marsh and used for fill. This constitutes about 75% of the total. We estimate that the capacity of this marsh is high enough to meet our needs for 30 to 50 years.

At present, we have no definite plan of financing, although the one most commonly considered is that of increasing the present rate of sewer-service charges. The present charges per quarter are 15 cents per 1,000 cubic feet for the first 10,000 cubic feet, and 10 cents per 1,000 cubic feet in excess of that amount. The minimum charge is 30 cents. This rate probably will be increased by three or four times, in order to finance the construction and pay for additional cost of operation.

The date of starting is uncertain, in view of present material shortages and possible labor shortages. The increase in sewer-service charges would provide an accumulation of funds so that money will be on hand when construction can be undertaken. This would correspond to the financing plan adopted in Cincinnati. Its sewer-rental charge was collected for two years or more prior to the beginning of the construction work. As a result the city had $3,000,000 on hand to finance the first contract without issuing bonds. If this plan should be adopted for Toledo, we feel that the marketability of the revenue bonds would increased.

A view of the Toledo sewage-treatment plant, located on a man-made island.

Dual installation, Vineland, N. J.

Vineland approves

WHEREVER Duals are installed, you'll find satisfied "customers"—both municipal officials *and* motorists. For Duals give the kind of dependable service that gets everyone's approval.

In Vineland, New Jersey, for example, 500 Duals were installed in 1950. Maintenance is practically nil. And more motorists get a share of available parking space.

Duals have more advantages. They're ruggedly built to serve for years—in any weather. They operate automatically. And with Dual *gearshift* meters, parking control is flexible; a mere shift of a gear—on-the-spot—permits conversions to be made to meet changing conditions.

If your community plans to install or modernize metered parking facilities, find out how Duals can do a better job. Send for Bulletin DU-504 for on-street parking; Bulletin DU-505 for off-street parking.

THE DUAL PARKING METER COMPANY

A subsidiary of The Union Metal Manufacturing Company

Canton 2, Ohio

Landfill Operations Half a Mile from Business District

Albany, Ga., abandons a smoky, rat-infested open dump, starts landfill operations at a more conveniently located site, and reduces costs while improving sanitation

By L. N. HALL
Superintendent, Operations Department
Albany, Ga.

ALBANY, Ga., is a first-class case of how sanitary-landfill work can cut refuse-collection costs by the careful selection of fill sites. We have selected one only 600 yards from our business district that has made it possible to cut our costs substantially and still not cause any residential complaints.

In the past, our city had used the old-fashioned open dump about 1½ miles from the business district. Like most dumps, the area was a harboring place for flies, mosquitoes, and rats. Combustibles were separated and burned, causing unpleasant smoke and odors in some residential areas. With the addition of 2,800 new families to the city as a result of annexation, it became imperative that we do something to improve refuse-collection service.

In order to make the improvement an advance in sanitation, as well as to increase the capacity of trash handled, we adopted the landfill method. A tract of submarginal land along the bank of the Flint River approximately 600 yards from the business district was selected for the site. The city then purchased a D-6 Caterpillar tractor and assigned an operator and clean-up man to the job.

To improve collection service, the city was divided into three collection areas, each receiving service twice weekly. Collections in the business district were stepped up to three times per day. To obtain this coverage, one day crew and one night crew were assigned to the business district, and the six residential crews were put on a staggered work week, one crew being off each day.

Service Additional Families

By shortening the distance of the hauls, we were able to service the additional 2,800 families, lay off two collection crews, reduce the remaining crews from a 10-hour to an eight-hour work day, and realize a saving that was sufficient to absorb the cost of the bulldozer. We kept no cost records prior to conversion, but we believe that it formerly cost us about 70 cents per cubic yard for refuse disposal. Our collection cost during the 12 months since the landfill has been in operation is approximately 51 cents per cubic yard for the 110,000 yards that have been processed.

We make collections in the business district three times daily. We have assigned a 1½-ton cab-over-engine Ford truck to the uptown district. This truck works around the clock and makes good use of its 512-cubic-foot scow body. The trucks that we use in addition to this Ford truck are as follows:

Three International trucks with 12-cubic-yard Gar Wood packer bodies each

One 3-ton G.M.C. with a 15-cubic-yard Leach Packmaster body

One K-7 International with a 12-cubic-yard Heil Packer body.

One 1½-ton International with 4-cubic-yard capacity. (Vertical extensions on the truck sides give an added capacity of approximately 4 cubic yards, which enables this truck to carry 8 cubic yards of loose garbage.)

At the present time, we do not require any separation of the various types of garbage, nor do we make any extensive restrictions as to the type of garbage we will load. We haul all wet garbage, tree limbs, and leaves; in fact, about the only thing we refuse is building-material waste or heavy metals.

Trench-and-cover work under strict supervision. A bulldozer-equipped Caterpillar D-6 tractor makes the trench, packs it, and covers the trash.

The operations are under the supervision of L. N. Hall, Superintendent.

No ceiling on safety here!

A Pan American World Airways Stratocruiser taxiing across Van Wyck bridge. Union Metal twin light steel poles light the underpass approach road.

World's largest commercial airport uses MONOTUBE LIGHTING POLES

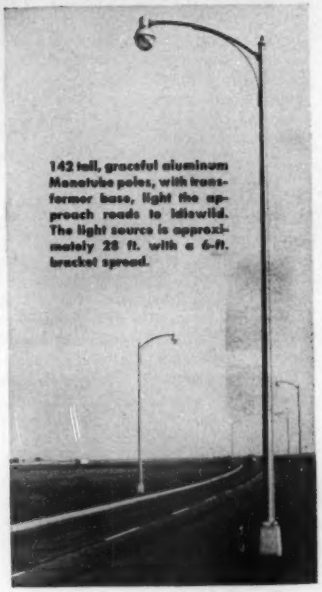
PROPERLY lighting the approach roads, underpasses, etc., at an airport is no "cinch job". Many factors must be considered—especially at a huge project like "Idlewild", the New York International Airport.

The engineers had a variety of problems to meet, but in every case Monotubes filled the bill. High and low poles, single and twin brackets, over 200 poles . . . some of steel, some of aluminum . . . all used to help give the safest and most efficient lighting to meet varying requirements.

Just as they do at "Idlewild", Monotube lighting poles successfully serve communities across the country—doing their share to help pedestrians and traffic be safer. They'll serve for years to come, because they're ruggedly built, require little maintenance.

If your community is planning to modernize street lighting, or light special areas, find out how much more efficiently and economically Monotubes can do the job. For information, write The Union Metal Manufacturing Co., Canton 5, Ohio.

UNION METAL
Monotube Street Lighting Poles



142 tall, graceful aluminum Monotube poles, with transformer base, light the approach roads to Idlewild. The light source is approximately 28 ft. with a 6-ft. bracket spread.

Fluted Monotubes, with twin brackets, greet visitors as they approach the Federal Building. These flagpoles, too, are Monotubes, made of steel.

She photographs the pages fast as she turns them

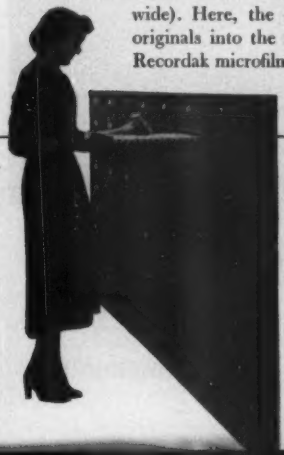
SINCE 1947 Kent County (Michigan) has been using Recordak microfilming on an extensive scale to protect valuable records . . . to save 98% in filing space . . . and to simplify reference.

The Microfilm Department is now photographing records for the County Clerk, the County Controller, the Probate Court, the Sheriff, and several other departments.

Many of these records are in bound volumes. But photographing them is no problem with the Recordak Model D Micro-File Machine, which you see in use.

Every time the operator turns a page, she depresses a convenient foot pedal. *Just this simple operation*—and a photographically accurate and complete record of the two facing pages is obtained. As a result, the operator whisks through her work . . . recording documents in "bound volume" sequence—unhampered by the task of removing pages—and possibly misfiling them.

Another Recordak Microfilmer (the commercial model) is used to record unbound documents (up to 14 inches wide). Here, the operator simply drops the originals into the machine—fast as she does, Recordak microfilm copies are made.



Quick reference. The Recordak microfilm copies, produced in both machines, are finger-tip filed—ready for immediate reference in a Recordak Film Reader, which enlarges every detail needle-sharp. Also, if original size facsimile prints are desired, they can be made directly from the microfilms—in the office or at any Recordak Processing laboratory.

Learn the low cost of putting Recordak microfilming to work for you. There's a complete line of Recordak Microfilmers designed for varying requirements—9 models all told. And all are now offered on an *attractive purchase or rental basis.* Write Recordak Corporation (*Subsidiary of Eastman Kodak Company*), 444 Madison Avenue, New York 22, N. Y.

RECORDAK

(Subsidiary of Eastman Kodak Company)

originator of modern microfilming—and its application to government routines

"Recordak" is a trade-mark

Typical cross section of documents now being put on Recordak microfilm in Kent County Recorder's Office

- Alimony checks
- Annual corporation reports
- Bank statements
- Birth certificates
- Cases in Justice Court
- Cash receipts
- Certificates of conviction
- Daily cash balances
- Death records
- Deeds
- Journals
- Ledger sheets
- Marriage records
- Mortgages
- Payroll checks paid
- Probate court calendars
- Receipts
- Register of warrants paid
- Revenue vouchers
- Special orders, decrees
- Tax sales notices
- Transfer vouchers
- Treasurer's receipts
- Vouchers paid
- Wills

6 New Trolley Coach Lines for Boston

Metropolitan Boston likes trolley coaches. And because it does, the Metropolitan Transit Authority's fleet has grown steadily since the first installation in 1936. This year, for example, six new trolley coach routes will be established.

Popular acclaim by riders has played an important part in each MTA decision to extend trolley coach service. This popularity, as well as management's appreciation of the trolley coach's reliability and relatively low operating cost, accounts for the growth of MTA's trolley coach fleet.

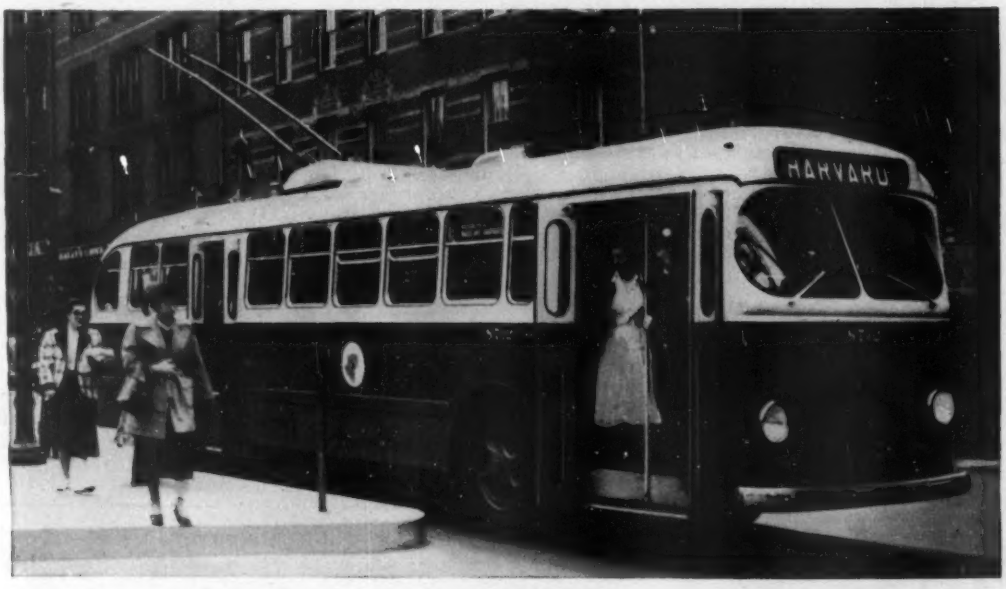
In medium-sized as well as large cities, forward-looking transit operators are using this modern electric vehicle more and more. Presently, trolley coaches are operating in 67 cities throughout the country, with populations ranging from 80,000 to upwards of 2,000,000 people. General Electric Company, Schenectady, New York.

OPERATING COSTS PER REVENUE MILE

(exclusive of depreciation)

YEAR	TRACKLESS TROLLEY	BUS
1945	39.02¢	46.83¢
1946	43.03	51.00
1947	45.21	55.30
1948	54.77	61.53
1949	54.90	64.87

Average seating capacity of MTA trolley coaches is 42; self-propelled vehicles have an average seating capacity of 38.



GENERAL ELECTRIC

151-33

Traffic Control and Facilitation

No Accidents Yet Where "Yield" Signs Used

SINCE the installation of a new type of sign at 15 of the most hazardous intersections in Tulsa, Okla. not a single collision has occurred. The sign pictured here does not require motorists to stop at open intersections when no cars are in sight. The signs are used in pairs. On one street of each open intersection (affording an unobstructed view of approach streets), the sign reading SLOW YIELD RIGHT OF WAY is erected. This sign means to decrease speed and yield to any vehicle on the cross street. The former stop or slow signs resulted in motorists stopping when unnecessary, while the slow or caution signs often were unheeded. The new "yield" signs are about the same size as the standard stop sign, with black letters on a yellow background, but of distinctive shape, as shown. While the yield sign is my "brain child," I feel sure that with it we have a stopper for the residential open-intersection accident. Salt Lake City, Minneapolis, and Stillwater, Okla., are among the cities that will install the signs in the near future. We hope to make them as commonplace in traffic control as the stop sign.

Open-intersection accidents are the prime variety of serious accidents in Tulsa. We average 96 such accidents a month in this city with a population of 200,000. The yield sign is now backed by a city ordinance that makes it an official traffic-control device in the City of Tulsa, and even makes it a prima facie offense to be involved in a collision after passing a yield sign.

The word "Slow" at the top of the sign will soon be dropped as we only intended to use it during the educational period. The keystone shape was selected because of the economy in cutting the signs, without waste, from a single strip of metal.

CAPTAIN CLINTON E. RIGGS
Traffic Division
Tulsa Police Department
Tulsa, Okla.

Paul Rice, Traffic Engineer of Tulsa, Okla., and Captain Riggs, originator of the newly installed "Yield" signs.

The Unknown Factor in High Traffic-Fatality Rates

"THE world's worst drivers do not live in the United States," says the Highway Research Board. And it adds, "This is hard to believe!" It *is* hard to believe when one looks at the figures which the Southern California Edison Company has been presenting in an advertisement. These statistics were compiled by the Association of Casualty and Surety Companies, and are as follows:

1. During 1951 the millionth U. S. soldier since the Battle of Lexington will lose his life, unless a truce stops current hostilities.

2. During 1951, the millionth U. S. traffic victim since 1900 will lose his life, unless we halt our ruthless slaughter on streets and highways.

In 51 years, our traffic dead have equaled in number those of seven wars, which lasted for 22 of the 176 years since 1775. In spite of this large figure, however, the United States retains a comparatively low fatality rate. In a list of 33 world cities surveyed by the Danish government for traffic deaths in 1948, the highest-ranking American city —Pittsburgh—was in 23rd place. One of the lowest rates was that of Milwaukee, with 22.5 fatalities per 100,000 vehicles.

The prize for destructiveness went to Bombay, with a fatality rate of 769.66 per 100,000 vehicles. This is about one traffic death a year for every 100 vehicles. That this city ranked at the top may perhaps indicate that fatalities are not the result only of poor street visibility, liquor, and negligent pedestrians, but also of a faulty personality-trait on the part of the drivers. This is the great unknown "X" in the traffic-safety equation, the psychological foundation of which is perhaps explained, in part, by a passage from Louis Bromfield's *Night in Bombay:*

A Wild Driver

Then the taxi driver forced himself into her thoughts. He was a wild driver, worse than any of the wild drivers she had encountered in the East. The automobile, it seemed, always produced an astounding effect upon coolies in the East; it intoxicated their downtrodden, starved, beaten souls to feel beneath their bare toes an engine of great power, capable of immense speed, over which they held absolute power. Each coolie from the moment the wheels began to turn became a dictator, his soul released and drunk with power. This particular driver drove like a madman, at top speed, swerving around corners, charging through crowds, dashing in front of advancing cars at every crossroad. For a long time Carol managed to keep silent but at last when she could bear it no longer, she cried out, "Buck, tell him to go slower. He'll kill someone."

Buck grinned, "He loves it," he said, "the speed frees his soul. Nothing else that he knows can do that." He leaned forward and in Hindustani admonished the driver who slowed from fifty to forty miles an hour through the swarming streets of the Mill district. But again and again, it was necessary to tell him to slow down. The nervous bare toes, it appeared, were beyond control even of the wild Sikh himself.

Even in the United States, native soil of the motor vehicle, the best of shoes can't stop coolie-souled toes from itching.

JOE PRISMO...

AT BAT!

JOE PRISMO bats 1.000 every time he comes up. No matter how tricky the light beam or the speed of its delivery, he returns it with interest!

Prismo's a big leaguer with lots of shine, not just a flash in the pan. He's really there to stay!

Prismo's superiority depends upon perfect teamwork: crystal clear Prismo spheres held in a bulldog grip by a great plastic Prismo binder. This combination is the result of the technical know-how that engineers have long experienced in the field of reflective coatings.

Prismo's great staying power and simple speedy method of application mean real savings in your budget.

Write today for fully informative bulletins on the many uses of Prismo, the sphere of safety.

PRISMO SAFETY CORPORATION
HUNTINGDON, PENNA.

New York City to Buy First 1,500 Parking Meters

ON MAY 7, 1951, New York City's Commissioner of Traffic Lloyd B. Reid filed a requisition with the Department of Purchase for 1,500 parking meters. They are to be installed in five test areas in Manhattan, Brooklyn, the Bronx, and Queens.

The parking meter fee for the City of New York is fixed by law [said Commissioner Reid]. It is to be 10 cents an hour. The only latitude allowed the Commissioner of Traffic in the operation of parking meters is to specifically fix the period of the parking time limit.

While it is not intended to blanket the city with forests of parking-meter stanchions, there are many areas in the five boroughs of the city where I earnestly feel traffic and parking conditions can be improved through the use of parking meters. These are similar to the five locations chosen for the initial experiment, such as local shopping areas where available curb space, urgently needed for short-time parking by shoppers, is occupied by all-day parkers.

Revenues from parking meters are to be placed in a special traffic-improvement fund in accordance with the provisions of Chapter 46 of the City Charter. Under these provisions the revenues of this fund, upon authorization of the Board of Estimate, are to be used for the payment of the cost of purchase and maintenance of the parking meters and the collection of fees. Any revenues remaining after such payments are to be used, upon authorization of the Board of Estimate, for capital and other expenditures to ameliorate traffic conditions.

Fitting Trolley Coaches To One-Way Streets

TRAFFIC congestion has also come to the broad streets of downtown Columbus, Ohio. Mid-block loading of transit vehicles and banning of parking have brought temporary relief. But late afternoon regularly finds long lines of cars clogging the downtown streets of Ohio's capital city.

The latest anti-congestion device brought into the fight has been the one-way street.

Columbus is a trolley-coach town, using 240 coaches on eight main-line routes that all go through the one-way street area. Many of the benefits, the disadvantages, and the problems of trolley-coach operation have become apparent.

One of the major considerations is changing the overhead to fit the new routing. On both Spring and Long Streets, trolley coaches formerly went in two directions. Now they go east on Long Street and west on Spring Street. In revamping its overhead, the Columbus Transit Company had to provide for the fact that the one-way street program might not become permanent.

Taking a long-range look at the project, it would seem that several benefits eventually should result for the trolley-coach part of the CTC operation. One-way streets will cut down on the amount of special work required at downtown intersections.

A lesson in lasting quality is given by the fact that 19 of the original 20 coaches, bought in 1933, still are available for service. These 30-passenger trolley coaches often scurry about the city on tripper service during the afternoon peak hours.

Probably the best service record belongs to the eighteen 40-passenger coaches, bought in 1938, that already have gone over half a million miles each.

Street Warning Signs That Defy Wind

A NEW safety sign to warn motorists approaching work areas, consists of a red angle-iron frame that opens into a wide base so that the standard won't blow over in strong winds or in the backwash of passing trucks. Two red flags mounted diagonally give it a striking appearance. The free-swinging sign in brilliant yellow uses black-lettered legends that can be reflectorized with Scotchlite for night or cloudy-day display.

Both the sign and the frame are made of baked enamel, resistant to weather and stone bruises. The sign frame folds up neatly and locks in place for convenient carrying and easy storage. Weight without flags, which are removable for space saving, is 13 pounds. The unit is 27 inches high and 18 inches wide.

The sign is made by Eastern Metal of Elmira, Inc., Elmira Heights, N. Y., makers of steel safety signs. According to Burleigh M. Names, the president, the company's signs are being used by municipalities from towns on Long Island to the cities of Atlanta, Cincinnati, and Syracuse.

The safety sign that won't blow over, yet weighs only 13 pounds and can be folded into a compact, light package.

A Sign Which Suits A Certain City

Compatibility between sign and locale.

WHEN the City Council of Mountain Brook, Ala., decided to install new street markers, they felt that the rolling wooded terrain of their residential city, a suburb of Birmingham, called for a special type designed to fit in with the rustic surroundings.

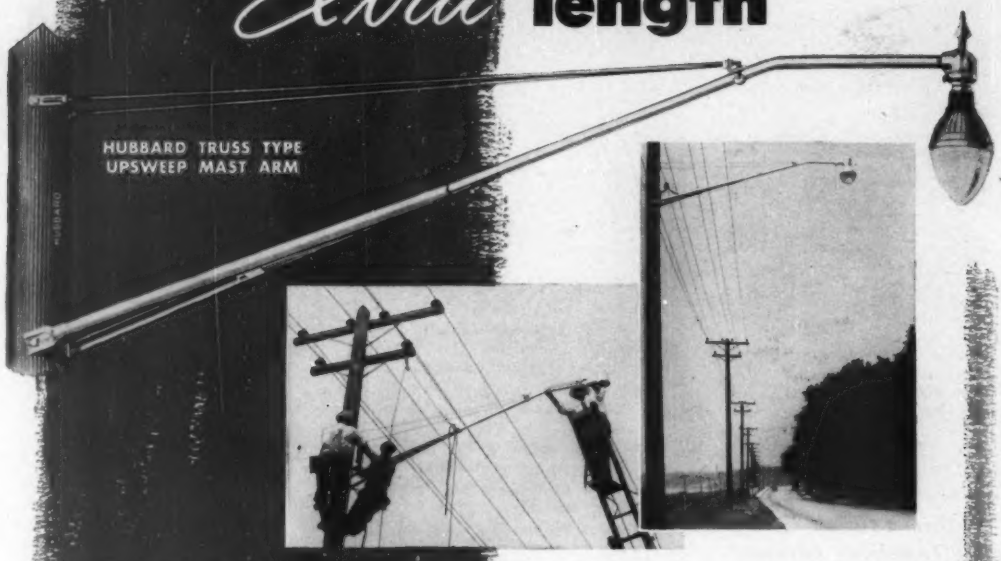
Several types of metal signs were considered, but all were rejected as not being in keeping with the character of the city. Finally, with the assistance of two local businessmen, a lumberman, and an ornamental-iron manufacturer, a marker was produced which the Council considered eminently suited to a community such as Mountain Brook.

The marker is a wooden sign suspended from a wooden post by a wrought-iron bracket. The sign is 1 by 2 feet, and 2 inches thick. It is painted black with the street name in silver letters. The post is 6 by 6 inches and 10 feet high, made of yellow pine, rough, and chemically treated.

The cost of the marker is itemized as follows: post, $4.02; iron brackets, $2.50 each; markers, $.43 each, and painting street names, 2 sides, $2.50. The total cost of a complete marker consisting of a treated post, two iron brackets, and two signs (including painting street names), is approximately $12.60.

Installation is simple and inexpen-

Extra strength ... for *Extra* length



CHECK THESE ADVANTAGES

- ✓ Exceptional strength . . . four-way triangular truss arrangement.
- ✓ Requires small pole mounting space.
- ✓ Meets all current strength and design requirements.
- ✓ Simplicity of design means low cost.
- ✓ "Free flowing" internal wiring — beveled pipe ends — no sharp bends — no obstructions.

Hubbard Truss Type Upsweep Mast Arms embody the features which Hubbard has pioneered in other members of the "Upsweep" arms and brackets. In the three years since their introduction they have received wide acceptance with the Electrical Industry because of the special and desirable features which they possess.

The No. 3944 series has exceptional strength in all sizes, greatly in excess of the most severe service requirements. Six-inch threads at both ends of supporting rods provide leveling and lift adjustment. The Arms may be used with internal or external wiring.

HUBBARD AND COMPANY

ESTABLISHED 1843

PITTSBURGH • CHICAGO • OAKLAND, CALIFORNIA

"Hang the Load on Hubbard Hardware!"

sive. Visibility, both day and night, is good. Admittedly, maintenance costs will be higher than for metal markers, but the Council believes that this is a small price to pay for the beauty and appropriateness of the marker.

ALVIN W. MORLAND
City Manager
Mountain Brook, Ala.

Rubber Warning Pylon Signs

A PORTABLE "men working" signal made for the Consolidated Edison Company, of New York, is so successful that its wide usage in other cities is probable. The signs are made of a special inflatable rubberized fabric by The Goodyear Tire and Rubber Company, of Akron, Ohio.

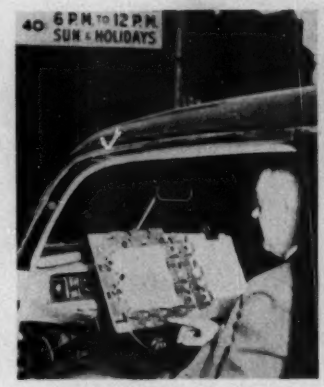
Made of two air chambers, the pylon is reinforced for rigidity by a number of cross-supports at the back, to which electrical connections for flasher lights and other illumination may be attached. The base, made also of rubberized fabric, and resembling a small life raft, adds further to the rigidity of the pylon. The two initial pylons were 12 feet and 6 feet in height, respectively, when inflated; yet either can be packed in a small container for carrying when deflated and not in use.

The two upright chambers are filled with air, while the base is filled with water to moor the device firmly to its desired position. Goodyear recommends its fabrication in light colors to increase visibility both by day and night. Where sections of the street require barricades for the safety of men working on water, sewer, gas, and electric installations, these pylons can be quickly erected and equipped with flashing signal lights as a caution warning to traffic.

PHOTO COURTESY CONSOLIDATED EDISON

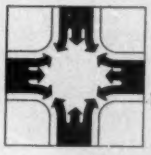
An inflated "men working" signal made for the Consolidated Edison Co., New York, was so successful that it may be used widely in other cities.

Denominators Better Than Pencil For Counting Traffic



Counting boards are used with facility by investigators sitting in cars, or on foot—are superior to the old methods in both convenience and accuracy.

By JEROME D. FRANKLIN
Traffic Engineer
Grand Rapids, Mich.



FOR THE last year and a half, our traffic investigator has been using Denominator counters for making tallies of all traffic movements at intersections in Grand Rapids, Mich.

We have made many of these counts, for determining the need for the installation of traffic-control signals and stop signs prohibiting left turns, and, recently, to determine the before-and-after results of a pair of recently opened one-way streets. Our investigator devised the board in the photographs, on which the counting devices are mounted. The set-up can be worked without a car or can be strapped to the steering wheel, as the photographs illustrate. During the past month, when it was necessary to make a simultaneous count at two adjacent intersections, one count was made with Denominators and the other by the old pencil method; and it was interesting to note that the traffic investigator using the counter devices was not only more accurate in recording the correct number of vehicles, but also was less fatigued at the end of the day. Each counter takes care of a specific vehicle flow, such as northbound cars that turn left. Thus three counters are needed to count the (1) left turns, (2) straight throughs, and (3) right turns, for each of the four streets, or 12 counters for a complete, simple intersection count. In addition, extra counters are attached to the board in order to record the number of pedestrians crossing each of the intersecting streets.

Total Computations

Our average traffic counts are 11 hours long, from 7 a.m. to 6 p.m. inclusive. At the end of each half hour, the numbers of vehicles, registered on the counters, are entered in the proper columns of the form. All computations and grand-totalings are performed at the office. The investigator's sole job is to furnish accurate half-hour counts cumulatively. We use the same form for making a summary.

Prediction of Things to Come

Very few cities have been able to get the buying of traffic paint down to a basis of tests which are both simple and practical. Los Angeles has been diligently working toward this goal, and will report the results in the July issue of *The American City*.

"Traffic deaths at four intersections cut 71%"

says San Francisco's Mayor Robinson

"Before" and "after" installation of L-M Spherolite luminaires on San Francisco's Geneva avenue. The view is looking east from Mission street. L-M Spherolites with 4000-lumen lamps were set at 135-foot intervals, staggered on opposite sides of the street. Mounting height is 27' 4", on 6-foot brackets.

"Traffic deaths at four intersections were reduced 71 per cent in one year with modern street lights," says Mayor Elmer G. Robinson. "The year prior to our installation of new lighting at four suburban intersections, there were 32 night deaths. The year following the lighting installation, there were 19. Still too high, but not caused by inadequate lights.

"The people of San Francisco are growing more aware of the great importance of street lighting. Our lighting program today is at an all-time high, and Line Material's Spherolites are doing their part."

•

Aiding Mayor Robinson in this progressive civic program is Mr. B. A. Devine, manager and chief engineer of the San Francisco Bureau of Light, Heat and Power, who worked with L-M Lighting engineers in planning the new lighting, supervised its installation, and is in charge of its operation.

Also cooperating with the city and L-M were engineers of Pacific Gas and Electric Company, who aided in the overall plans for the city's program of improved street lighting.

Complete Lighting Engineering Service. For many years L-M has been outstanding in its extensive staff of lighting engineers, who cooperate with municipalities and power companies in planning street lighting programs that meet the needs of the municipality and the neighborhood.

For full information on this service and on L-M equipment, ask the L-M Field Engineer, or write Line Material Co., Milwaukee 1, Wisconsin (a McGraw Electric Company Division).

The famous L-M Spherolite*

Directs a high percentage of the light onto the pavement, spreading the light over a wide area, in a precisely controlled pattern. Variety of heads, reflectors and glassware to meet any requirement. Low maintenance, easy accessibility for service. For details ask for Bulletin SL3.

*Trademark

47

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LINE MATERIAL . . . Street Lighting

Outdoor Lighting

Information Coming That Will Bring Better Street Lighting at Lowest Cost

SALESMEN representing electrical-equipment manufacturers can sell most equipment except street-lighting equipment," says D. A. Gaffney, of the Niagara Mohawk Power Corporation. The reason for this is the lack of knowledge which consumers have about modern street-lighting equipment. This lack of knowledge slows up decisions and often results finally in the purchase of the same old outmoded items, or of items so completely different from those last purchased as to require special manufacture. With sufficient knowledge o fwhat's available, what's standardized, and what's authoritatively recommended, prompt and proper decisions can be made.

This entire subject was thrashed out in a three-pronged symposium presented before the Northeastern District Conference of the A.I.E.E., at Syracuse, N. Y., on May 2, 1951. This up-to-date exchange of ideas, solutions, research, and recommendations will be published in early issues of THE AMERICAN CITY.

The material will consist of three papers, keen discussions of the papers by specialists, and listings of the modern products discussed. These products include luminaires, lamps, brackets, mast-arms, standards and poles, street-lighting controls, street-lighting transformers, sealing compounds for keeping water out of fixtures, and the new and tried types of street-lighting cable. Not one of these products is included because it is standard, but because there are problems connected with its selection, installation, operation, and cost, about which street-lighting men should have impartial information.

Fixtures, Supports, and Cables

In this discussion, the manufacturers get together for the good of adequate street lighting at lowest cost. The first paper is by D. A. Gaffney, District Superintendent of the Niagara Mohawk Power Corporation. To the opening sentence of this article he adds, "There is a definite need for some type of educational program to inform those responsible for the final decision on the installation of new street-lighting equipment about the use of standardized materials, such as so-called 'slip fitters,' heads, externally wired heads, glassware with good distribution, brackets, 'streamlined' ornamental lighting standards, and new economically priced cable." The authoritative material to be published in THE AMERICAN CITY will be an effort to fill this need.

The second paper, by A. M. Bjontegard, Design Engineer, Lighting Division, General Electric Company, will discuss the familiar problems of glassware breakage, moisture within luminaires, interchangeability, cable deterioration, and what can be done about these questions.

The third paper will be by R. C. Graham, Chief Product Engineer, Rome Cable Corporation. Not only because of the problematic availability of lead, steel, and rubber, but also because neither the utilities nor the cable manufacturers have ever been satisfied, and both have been driven by rising costs, a whole new line of electric cables has been developed. Mr. Graham presents and discusses those suitable for street lighting—overhead, underground, series, and multiple.

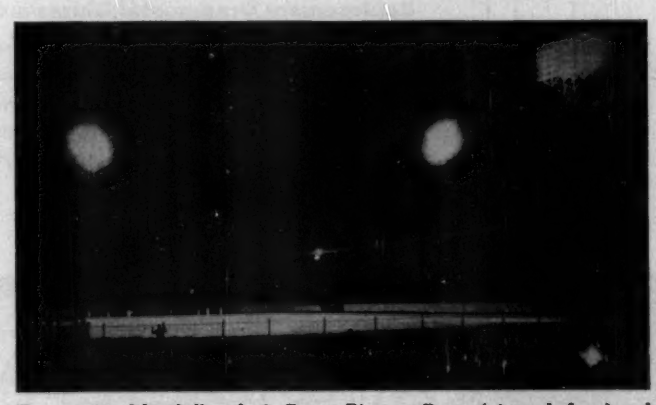
All three papers are scientific in their impartiality. Their authors are selling nothing but practical knowledge that will permit the best and most economical equipment to be purchased for street lighting. Included will be a discussion of these papers by recognized authorities connected with the Westinghouse Electric Corporation, Line Material Company, The Union Metal Manufacturing Company, Habirshaw Cable and Wire Division, Anaconda Wire and Cable Company, and The Rochester Gas and Electric Corporation. There will follow a summing up of these comments by the authors of the three original papers.

Listing of Products

The final practical aspect will be a listing of the products available under each of the classifications discussed. Information on where full descriptions of the characteristics of individual products can be obtained will be included. All the manufacturers of these products known to THE AMERICAN CITY and the *Municipal Index* have been invited to supply brief illuminating descriptions of their products.

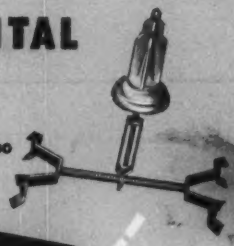
The July issue of THE AMERICAN CITY will announce the issue or issues in which these papers and discussions will appear.

Newly Lighted Ball Parks in Puerto Rico

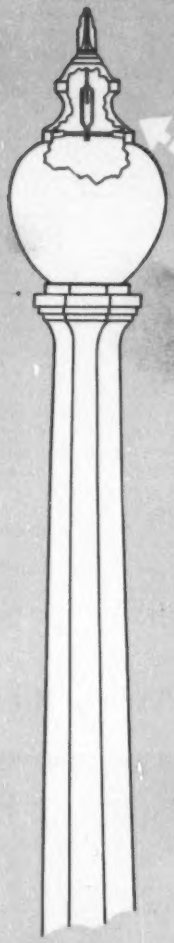


Two municipal baseball parks in Puerto Rico—at Ponce (pictured above) and at Mayaguez—have illumination installed according to identical layout plans. Each has an average illumination of 90 foot-candles in the outfield and 115 foot-candles in the infield. Light falls from eight steel towers, each with 540 General Electric floodlights mounted at a maximum height of 125 feet. The four outfield towers each hold 60 floodlights; the two infield-outfield towers, 100, and the two infield towers, 50 each. The kilowatt load is 950 per field.

FOR YOUR UPRIGHT ORNAMENTAL STREET LIGHTING GLASSWARE



Catalog No. J95300



The JOSLYN Canopy Holder and Finial provides an ideal method for attaching glass canopies to Ornamental Glass Globes.

A most popular accessory used in hundreds of cities throughout the country.

Accommodates globes having top opening 8" to 11" in diameter with various canopies.

The vertical rod permits adjustment for canopies of different heights.

The compression springs on horizontal rod provide for installation without special tools. Bracket fingers provide positive attachment to flange of globe.

Metal finial has felt-gasketed seating surface to insure tight fit when secured in position.

Catalog Nos. J94274 Canopy And J95274 Globe

Catalog Nos. J94266 Canopy And J95265 Globe

Replacement Ornamental Glassware

We can make prompt delivery on all standard globes and canopies to fit ornamental street lighting standards. Complete listing of dimensions and catalog numbers will be found in our latest catalog No. 16—send for a copy today.

Branch offices in principal cities

THE JOSLYN CO.
THE SOUTH EAST JOSLYN CO.
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Complete Pole Line Equipment

30 NORTH WACKER DRIVE, CHICAGO 6, ILL.

Yonkers Meters and Lights Its Downtown Parking Lot

By EARLE GRIFFEN
City Engineer
Yonkers, N. Y.

THE new lighted and metered parking lot of the City of Yonkers, N. Y., was designed with primary consideration given to providing convenient access streets, adequate width of aisles and car stalls, and proper lighting and drainage. Since the lot has been in operation, the favorable comments received indicate that these ends have been attained and that the public is well served.

Located adjacent to Getty Square, in an area formerly cluttered with old factory buildings, warehouses, and automobile-repair shops, the new municipally operated, off-street lot involved an expenditure that amounted to about $750,000 for the acquisition of the properties, surveys, demolition of the buildings, the construction of two bridges to connect the area with adjacent traffic arteries, and paving, grading, and lighting.

The area contains spaces for 352 automobiles, with most of the spaces metered for two-hour parking at five cents per hour, and some four-hour spaces available. Based on preliminary surveys, the annual yield from the parking meters is expected to reach $20,000.

Open since the first of the year, the lot has relieved traffic congestion substantially in the Getty Square area, particularly during commuter and shopping hours.

Lot Construction

The four-acre lot, completely asphalt-surfaced, is enclosed on all sides by a Cyclone chain-link fence. Entrances and exits were located for rapid flow of vehicles. Stalls are marked out for angle parking, generally at 60 degrees, and stall width is 8½ feet; this to afford ease in parking and to minimize damage to parked cars — scratched bodies, bent fenders, etc. Plainly visible arrows, painted on the pavement, direct motorists to individual parking bays, which are separated by raised, concreted walkways along which the meters are placed. They were supplied by Michaels Art Bronze Company, of Covington, Ky. Grading, paving, and improving were done by Black Top, Inc., Mt. Vernon, N. Y. The bridges were built by A. and J. Cianciulli, Inc., of Yonkers.

The pavement consists of a 4-inch penetration-macadam base with a 2-inch asphaltic-concrete wearing surface. The base course consists of a mixture of two parts of 1½-inch and one part of ¾-inch trap rock. After rolling, hot asphalt cement, 100 to 120 penetration, was applied with a pressure distributor at the rate of 1¼ gallons per square yard. Immediately after this application, ⅜-inch trap rock was spread over the surface and rolled. Surplus ⅜-inch stone was broomed off before the wearing course was placed.

There is considerable evening parking in the area of Getty Square, Yonkers, because of the proximity of several theaters and the fact that the stores in the surrounding shopping district remains open on Friday and Saturday nights.

Pavement in the parking stalls and aisles is not crowned but is sloped straight from curb to curb, with sufficient pitch to conduct surface water to the gutter at the lower curb. Inlets to receiving basins on the drainage system are built with curb openings as well as gratings.

All walks are of concrete, one course 5 inches thick cast in alternate sections on a 6-inch cinder base; expansion joints are provided every 50 feet. Sleeves are placed in the walks to receive the meter posts. All curbs along the meter walks are of concrete with expansion joints every 50 feet, and construction joints every 6 feet. At the short-radius curves at the ends of meter-walk islands, the concrete was formed with flexible Masonite strips about ⅛ inch thick; excellent results were obtained with no kinks where the curved sections meet the straight sections.

White-way luminaires make the area "as bright as day" during the evening and night hours when traffic is heavy. They consist of 12 General Electric luminaires fitted with 15,000-lumen incandescent lamps, mounted 32 feet above the pavement on Union Metal poles. The illumination level is about 0.8 foot-candle over the area. Installation of the lighting system was by Domizio and Everts, of Yonkers, in cooperation with the Westchester Division of Consolidated Edison which provides the underground service connections.

The construction cost was $230,000 because of the unusual conditions on the site. It was necessary to bridge the Nepperhan River in two places, and also construct a retaining wall on two of the access streets. The total cost, including land and construction, is to be divided as follows: 50% paid for by special assessment levied against property in the surrounding areas deemed to be benefited, and 50% by the city at large.

Street-Lighting Report From Waukesha, Wis.

STREET lighting in Waukesha, Wis., cost $25,873 in 1950, and $26,451 in 1949. It amounts to $1.22 per capita. The slight drop is more than explained by a 1949 item of $5,084 for special services on Main Street in connection with repaving. The cost breakdown comprises $18,933 for street lights, $5,970 for supplies, $932 for maintenance of ornamental lights, $293 for traffic signals, and a credit of $397 from the Wisconsin Electric Power Company.

So effective have mercury-vapor lights proved at six intersections, that the City Council has ordered similar installation at 10 other locations.

Over 10,000 installed in one city... for good reason!

Installing a good street lighting system is only part of the job. Equally important is the maintenance of that system. For example, Cleveland gets these maintenance advantages by using the AK-10!

1. They save time on routine washing and relamping because of the automatic latch-on device. Maintenance is a speedy one-man operation.
2. They get longer reflector life because this is the heaviest aluminum reflector of any unit of its type available today. This provides greater mechanical strength and a better reflecting surface.
3. They get better maintained lumen efficiency throughout the life of the lamp, because this unit is 25% larger than other units and, therefore, has a lower operating temperature.

Check the standardized line of interchangeable street lighting units available at Westinghouse. Send today for B-4237, Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pa.

YOU CAN BE SURE... IF IT'S

Westinghouse

LIGHTING DIVISION

Edgewater Park, Cleveland

J-04301

Street-Lighting Practice In Cleveland, Ohio

TODAY'S higher-intensity street lighting, in addition to permitting agreeable movement by foot and car at night, has two other purposes—reduction of night-traffic fatalities, and providing adequate illumination on streets and sidewalks so that people may use them without fear of molestation.

Scheduling of lighting projects is determined by their urgency. This is governed by the number of night-traffic fatalities—expressed in fatalities per mile of street—and by percentage of existing illumination to values recommended in national standards for the lighting of city streets.

Cleveland has adopted a street-lamp standard which is unique. It is designed for a lamp standard, a trolley support, or both. This results in the use of a minimum number of poles along a street, with a substantial saving in overall costs.

During the last two years, more than 8,000 street lamps have been installed or modernized. This represents more installations than in any comparable period in the last quarter-century. Out of 1,200, the city now has more than 200 miles of streets which have modern street lighting. Power for two-thirds of these lights is provided by the Municipal Light and Power Plant, with the Cleveland Electric Illuminating Company supplying the remainder of the necessary power.

WILLIAM T. SOJEBA, *Chief*
Bureau of Street Lighting
Cleveland, Ohio

A view of Tejon Street, in Colorado Springs, after the installation.

20 Times More Light on Tejon Street

REPLACEMENT of old-style incandescent units with modern mercury-vapor luminaires has enabled the Public Utilities of the City of Colorado Springs, Colo., to boost by more than 2,000% the average illumination level of the city's main business street. The new "white way" system, covering eight blocks of 70-foot-wide Tejon Street, is part of a long-range lighting modernization project. This information was supplied by engineers of the city utilities, and reported by the General Electric Company of Schenectady, N. Y.

The installation consists of 85 General Electric Form 109 luminaires equipped with 15,000-lumen lamps. The new fixtures are mounted 30 feet high on brackets. These brackets extend 6 feet over the roadway from steel trolley poles spaced 100 feet apart on opposite sides of the street.

Various types of incandescent units made up the old Tejon Street system. On one side of the street were 200-watt multiple lamps mounted 18 feet high and spaced at 100 feet. The other side was lighted by five-ball and four-ball clusters, 12 and 14 feet high, and spaced 50 feet apart.

Compared with an average illumination level of only 0.1 foot-candles provided by the old incandescent units, the new mercury fixtures produce a level in excess of 2.1 foot-candles, the engineers said. Power consumption by the mercury system, which utilizes multiple circuits and underground wiring, is nine watts per linear foot, against the former four watts.

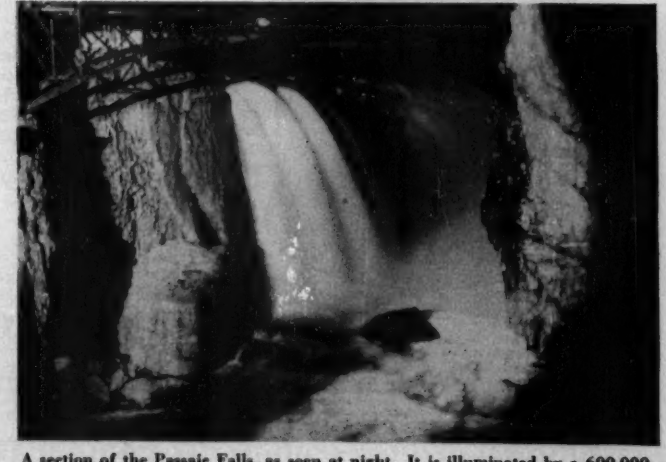
Passaic Falls Floodlighted at Night for the First Time

THIS city's major scenic and industrial glory, Passaic Falls, is playing its part in the celebrations planned this year to mark the 100th anniversary of the City Charter of Paterson, N. J. The city was established in 1791 by Alexander Hamilton as America's "first industrial community" because of the water power derived from the Passaic River and Falls.

Subject of stories and poems—the latest "Paterson," which won for Wilam Carlos Williams the 1950 National Book Award for poetry—Passaic Falls has been below par in recent years. Now, however, winter rains and snow have restored its splendor.

Passaic Falls is now a sight by night as well as by day, as it has been spotlighted for the first time in the city's 160-year history.

MICHAEL U. DE VITA
Mayor
Paterson, N. J.



A section of the Passaic Falls, as seen at night. It is illuminated by a 600,000-candlepower floodlight as part of the city's 100th anniversary celebration.

CROUSE-HINDS Type HSL

... the *economical* and *flexible* high intensity airport runway light

Crouse-Hinds TYPE HSL is approved under Specification L-820 "Fixed Focus Uni-Directional High Intensity Runway Light." This system features both economy and flexibility. It is economical because only one of the 95-watt main beams is turned on in bad weather, and only a 30-watt light in clear weather. It is flexible since the high intensity beams can be individually adjusted for the most effective angle of toe-in and elevation for any particular airport and any season of the year. This adjustable toe-in produces the best visibility for differing atmospheric conditions. This fixture provides a main beam in only one direction, without the background haze resulting from the "back beam." After relamping, the sealed beam optical system is back to 100% initial efficiency.

Crouse-Hinds offers all three types of high intensity runway lights. Each of the other two types have their individual advantages.

Type HRC is a controllable beam bi-directional high intensity runway light. It utilizes a double prismatic lens system on a cast aluminum base, with a 500-watt, 115-volt lamp mounted on a movable socket. The main beams may be "toed in" or "toed out" by remote control from the tower to provide the best setting for particular visibility conditions. The candlepower is the highest of the three types.

Type HRL is a fixed focus bi-directional high intensity runway light. It uses a 200-watt lamp and is provided with a series to series insulating transformer installed underground in the base housing. This system has the lowest installation cost, and for many airports its use is justified for non-instrument runways, as well as instrument runways.

All three fixtures provide the required basic high intensity candlepower and all use a 5-stage brightness control. They are designed for easy maintenance and have heat-resisting glassware, breakable couplings, disconnecting cable connectors, and standard steel transformer housings. They are carefully built to Crouse-Hinds high standard of quality from the finest material.

A Nationwide Distribution Through Electrical Wholesalers

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CROUSE-HINDS COMPANY OF CANADA, LTD., TORONTO, ONT.

AIRPORT LIGHTING · FLOODLIGHTS · CONDULETS · TRAFFIC SIGNALS

Civil Defense—Planning and Research—Street and Highway Design—Local Transit

Excerpts from the Statement of Policies of the Chamber of Commerce of the United States, adopted at its Annual Meeting in Washingon, D. C., May 2, 1951.

Civil Defense

CIVIL-DEFENSE planning is an integral element in our nation's security program. Sound civil-defense organizations should be developed now where needed in the communities throughout the nation, stimulated by a quickened interest and activity at the community level, and supported by local chambers of commerce.

There is an urgent need for more rapid preparation and training for civil-defense mobilization of the nation with provision for trained state and local personnel and preparation for mutual aid between areas adjacent to critical targets.

In keeping with the basic principle that the main responsibility for organizing, initiating, and financing adequate civil-defense programs rests upon the states and communities, the major burden of the costs of preparations should be borne by the states and communities themselves. The Federal Government's contribution should be limited to an amount matched with funds provided by the state and local governments. Existing structures should be adapted for civil-defense protection whenever possible, and the construction of new bomb shelters held to a minimum.

Planning and Research

Maintenance of a "shelf" of planned construction projects is recognized to be a promising method of stabilizing construction activity. The Chamber recommends adherence to this principle by both private industry and governmental agencies, and its effectuation as far as public works is concerned by continuance of the program of federal repayable loans for the advance planning of local public works.

Expenditures on Construction

Proposals have been made that expenditures for public construction be used to regulate the American economy. We recommend that public construction be initiated only after careful consideration has been given to the need for such public facilities, and not as a means of economic or social regulation.

There should be increasing insistence upon state and community responsibility for their public works. Congress should take steps now to adopt such fiscal policies as will not unduly hamper the ability of the states and local governments to carry out their responsibilities in this and in other fields which are properly within their jurisdiction.

A Balanced Street and Highway Design

An urban street system should provide a proper balance in the location, design, and use of all classes of streets and highways, assuring provision of adequate traffic capacity. As traffic demand justifies, urban radial, distributor, and by-pass expressways with controlled access and a minimum of intersections should become a part of the major-thoroughfare network. In times of national emergency, priority should be given to new construction and reconstruction of facilities important to the military and civil-defense program.

Greater Use of Local Transit Should be Encouraged

In view of basic efficiency and economy of local transit in the utilization of urban streets, every effort should be made to facilitate and encourage greater use of local transit facilities and to maintain their financial and operating stability under private operation, with capitalization, fares, and service being regulated by a state utility commission or a properly designated official agency within the metropolitan area having jurisdiction over all types of local passenger carriers.

Since efficient and approved public transit is dependent upon its ability to attract investment capital, transit should be given a more favorable business climate in which to operate and should have relief from special and burdensome assessments. Unwarranted route extensions and other unprofitable services affecting the financial stability of the transit carriers should be discouraged.

Massachusetts First State To Issue Minimum Housing Standards

THE report has come to THE AMERICAN CITY from W. C. Loring, Jr., Executive Director, Housing Association of Metropolitan Boston, that a state-wide approach to the problem of securing local minimum-housing standards is proving successful in Massachusetts.

The Massachusetts Department of Public Health promulgated, late in 1949, a body of regulations on "Minimum Standards of Fitness of Human Habitation," which could be adopted by local boards of health as reasonable health regulations, or by a city council or town meeting as ordinance or by-law. A number of municipalities adopted these regulations in 1950, and more are expected to do so this year.

The Housing Association cooperated with the State Department of Public Health in getting out the minimum standards by doing the research on which they are grounded, and by helping to gain professional and public support for the regulations. Minimum standards of this sort are needed to permit the modern, preventive enforcement for conservation and rehabilitation of housing by local health departments currently being urged by the American Public Health Association and the United States Public Health Service.

Detroiters Vote Long Ballot on Machines

ELECTORS and election-board inspectors have both expressed a distinct preference for voting machines over paper ballots. More accurate results are obtained in a much faster time through the use of voting machines; the element of spoiled ballots is entirely eliminated, and a saving is accomplished in election personnel costs because of the reduced number of inspectors required in voting machine precincts.

"Bed-Sheet" Ballot

Because of an unwieldy bed-sheet type of ballot, which lists from 55 to 110 candidates for the State Legislature at almost every General September Primary in even years, from which an elector is required to select not more than 21 candidates, voting on machines is of necessity somewhat slower than in ordinary elections. Very few complaints, however, are made to this office by electors because of long periods of waiting time at elections of this nature.

All members of the Detroit City Election Commission are on record for the mechanization of all voting precincts at the earliest possible moment.

LOUIS A. URBAN
Director of Elections
City Election Commission
Detroit, Mich.

GUIDES YOU SAFELY

Most streets are ten times as dangerous at night as in the daytime. This is proven by accident statistics in community after community.

Many communities have also proven that adequate street lighting can cut this high night rate down to daytime level.

In Detroit, where 31 miles of streets were relighted the ratio of night to day fatalities was cut from 7 to 1 to 1.1 to 1. In Hartford Connecticut the relighting of 27 miles of streets cut the traffic deaths from 37 to 5 a year.

Today, progressive communities across the country are preventing accidents—saving lives—by reducing night accident rates to the low day rates with Comfortable Seeing.

Your electrical utility is vitally interested in your community's welfare. They have the know-how to help you modernize your street lighting quickly on an economically sound, planned basis. They can call on General Electric's services for planning and consultation.

G-E street lighting equipment has the flexibility to give you Comfortable Seeing engineered to meet the specific needs of your community. *Apparatus Department, General Electric Company, Schenectady 5, New York.*

Let your electric utility street lighting engineer show you how comfortable seeing SAVES YOU FAR MORE THAN IT COSTS.

GENERAL ELECTRIC

452-108

City Outlook and Reporter

The Credit-Restraint Program

Many municipal officials are concerned over the establishment in May of the national and regional Voluntary Credit Restraint Committees under the Defense Production Act, to help prevent further inflation.

Charles E. Wilson, head of the Office of Defense Mobilization, has requested that every state and municipal borrowing of $1,000,000 or over receive the approval of one of these committees, composed of private investment bankers, before being consummated. Mr. Wilson has asked that the financing of state- and local-government capital outlays for the following purposes be postponed:

1. Replacement of any existing facilities that can continue to perform their function during the emergency period.

2. Construction of facilities not recommended by the Defense Production Administration, including war memorials and recreational structures.

3. Acquisition of sites or rights-of-way not immediately needed.

4. Purchase of privately owned utilities by municipalities, which involves borrowing to replace equity capital.

Though the program is voluntary, and has no legal basis or effect, presumably materials for construction can be cut off by the National Production Authority in the event of a show-down if a city goes ahead with an unapproved project.

There is evidence that members of the investment-banking fraternity do not approve of their newly added responsibilities for thus "policing" local government bonds. Certainly, city officials don't. They point out that city taxpayers rarely approve proposed bond issues for projects which do not have real justification. They ask why municipalities should be still further hampered and penalized in their efforts to meet long-deferred public-improvement needs —many of them accentuated by the mobilization program itself—when Federal Government actions, such as the current payments of the second round of veterans' insurance refunds, are far more inflationary than local borrowings could ever be, and have no relationship to public needs.

They object to the vagueness inherent in the program, and to the fact that there is no "consumer" or local-government representation provided for on the credit-restraining committees. They are becoming increasingly determined to seek changes both as to the type and methods of the program now in effect.

New Public-Health Measure Aids New Jersey Municipalities

Two or more municipalities may now join in setting up public-health services in New Jersey, according to new legislation signed by Governor Alfred E. Driscoll on May 14. The measure was sought by the State Department of Health for several years and supported by a citizens' committee representing medical, education, welfare, and civic groups. Dr. Daniel Bergsma, State Health Commissioner, said that "a great challenge remains" for local administrations "to avail themselves wisely of the tool made available by the legislation."

Civil Defense Advisory Council Formed

It took quite a while, but at least on paper, municipal officials are being accorded some recognition in the making of policy on civil-defense matters. Of the twelve members on the Council, appointed early in May by President Truman, three are mayors: Martin Kennelly, Chicago; William F. Devin, Seattle; and David L. Lawrence, Pittsburgh. Mayor Kennelly is on for a one-year term, together with Frank Lausche, Governor of Ohio; Frederick Payne, Governor of Maine, and Luther W. Youngdahl, Governor of Minnesota. The two-year terms of Mayor Devin and Mayor Lawrence are also held by Dr. Lillian Gilbreth, industrial-management engineer, and Robert L. Smith, publisher, *Daily News*, Los Angeles, Calif. Three-year terms are held by George J. Richardson, secretary-treasurer of the International Association of Fire Fighters, Harry Darby, Mrs. Mary Bethune, and Silliman Evans, publisher of the *Nashville Tennessean*.

New Course on Planning In Emergency

A summer institute on Community Planning in Normal and Critical Times has been announced by the New School for Social Research in New York, under the direction of Carol Aronovici, housing and planning consultant. The institute will meet in two sections, running from July 9 through July 19 and again from July 23 through August 2. The twice-daily seminars will be under the leadership of a number of outstanding experts, including Hugh C. Pomeroy, Eduard C. Lindeman, Hans Blumenfeld, Walter H. Blucher, and Frederick H. Allen. Further information is available from the New School at 66 West 12th Street, New York 11, N. Y.

Emergency Committee To Save Public Housing

An Emergency Committee to Save Public Housing was formed on May 7 in New York City to combat the action taken by the House of Representatives in limiting to 5,000 the number of public-housing units which may be started in the fiscal year beginning July 1, 1951. This provision, and others designed to hamper the public-housing program in future years, were included in the Independent Offices Appropriation Bill on May 4, before going to the Senate Committee on Appropriations and the Senate for action. Municipal officials and civic leaders are urged to let their Congressmen know of the drastic effects on local public-housing programs if the House measure goes through. Address of the Emergency Committee, composed of nationally known group leaders, is 20 West 40th Street, New York 18, N. Y. Ira S. Robbins is chairman.

Puget Sound Cities Discuss Mutual-Aid Pact

Eight Puget Sound cities sent mayors and other civil-defense representatives to a meeting on May 5 for discussion of a proposed mutual-aid pact, presented by Mayor William F. Devin of Seattle. Under the terms of the proposed pact, the cities would exchange inventories of all facilities available for civil defense, including manpower. A stricken city would call upon the other cities to provide shelter for evacuees and aid in hospitalizing casualties. The cities would decide how much fire fighting and other equipment could be spared without jeopardizing their own communities.

Mayor Devin said Victoria and Vancouver, B. C., will be invited to join the cities of Olympia, Tacoma, Everett, Mount Vernon, Bellingham, Bremerton, and Port Angeles, which were represented at the first meeting. The Association of Washington Cities is drafting a model ordinance authorizing each city to enter into a mutual-aid pact.

Japanese Cherry Trees Banned

The Department of Agriculture has banned shipments of Japanese cherry trees to American communities as friendship gestures. Authorities say that they spread contagious virus diseases among American fruit trees.

Colorado Springs Approves Council Broadcasts

Radio station KVOR of Colorado Springs received permission to broadcast council sessions in Colorado Springs on May 9. The vote was 6 to 3 to give the station "revokable permission" to make tape recordings of the council sessions for delayed broadcast. The radio station intends to do a straight job of news reporting, editing the recordings, and then broadcasting them with a narrative by a news reporter. A similar arrangement was adopted in May by WFAA of Dallas, Texas, for council broadcasts in that city.

Wheeling City Employees on Reserve Duty to Receive Full Pay

Wheeling, W. Va., has acted so that city employees training with the National Guard or other reserve units of the armed forces will not do so at a loss. A new ordinance adopted in May will insure that city employees are paid the equivalent of their city salaries during training periods of 15 days or less with the guard or reserve unit. The city will make up the difference between the city pay and the armed forces' pay.

Saginaw Adopts Municipal Income Tax

Despite a pouring rain, a heavy turnout of voters came forth in Saginaw, Mich., on May 22 to approve a proposed 1% levy on individual incomes and net business profits. The vote, 9,030 to 5,432, was on an amendment to Saginaw's Home Rule Charter authorizing the city to assess such a levy. If the tax is held constitutional, Saginaw will be the first city in Michigan to use the income tax as a new source of municipal revenue. Because of a state law limiting the property tax millages in a number of Michigan cities, public-improvement construction has not kept pace with needs. Saginaw citizens had been well educated on the causes of the situation.

New York Cities Benefit from Easy Foreclosure Procedure

Residents of Mount Pleasant, N. Y., may long remember 1951—the year in which they are not to pay municipal taxes. According to the Municipal Finance Officers' Association, town fathers of Mount Pleasant have declared a tax holiday for the town's residents this year.

Here's what has happened: The city has foreclosed on a number of properties which were four years in arrears on taxes, and through the resale of this real estate has made enough to meet this year's budget.

Such action is possible under a New York law, first adopted in 1909 and held constitutional by the United States Supreme Court in 1947, which permits cities to take action against delinquent property rather than against the person who owns or has interest in the property.

TROLLEY COACH Maintenance

COSTS

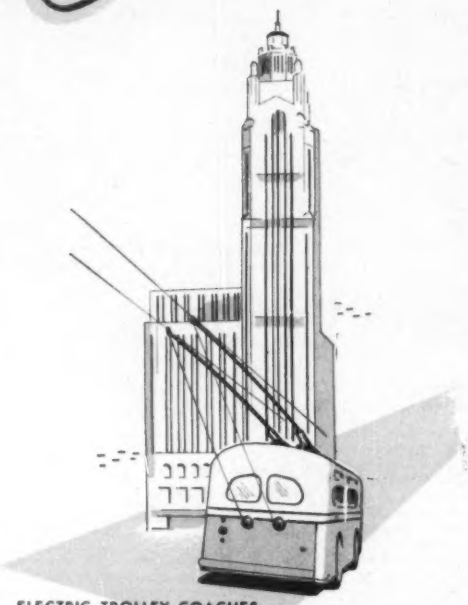
Columbus

Only 3.97 Cents Per Mile

For the first ten months of 1950, maintenance of 240 trolley coaches cost Columbus Transit Company only 3.97 cents per coach mile . . . including general shop expense, supervision, body repair, electrical repair, shop equipment, and tires and tubes.

Here are other highlights from the performance record of Columbus, Ohio, coaches which range in age from three to 18 years. Nineteen of the original 20 coaches still are available for tripper service. The 40 vehicles purchased in 1938 already have traveled over half a million miles each in service. Of the 83 coaches added in 1947, only two have had motors removed (for bearing replacement). Coaches of all age groups averaged more than 12,000 revenue miles per equipment failure.

These facts have made the trolley coach a favorite with both mechanics and management, have proved that in times of shortages of equipment and manpower your best vehicle is the dependable, electric trolley coach . . . operating under dependable Ohio Brass overhead materials.



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Now Serving 56 U.S. and Canadian Cities

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MANSFIELD OHIO, U. S. A.

Canadian Ohio Brass Co., Ltd., Niagara Falls, Ont.

4158-T

Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Annexation—Refusal of Consent of Sole Inhabitant

Where city sought to have realty owned by defendant declared part of plaintiff city, held that since only inhabitant of such realty refused consent to annexation, court would not grant annexation by judicial decree. *City of Cincinnati* v. *Wesleyan Cemetery Assn.*, 95 N. E. (2d) 331 (Ohio App., Hamilton Co., Nov. 28, 1950).

City Employees—Leave of Absence for Military Service—Interference With Seniority Rights

In action to determine legality of city council in appointing another as Chief of Detectives of City Police Force when petitioner had previously been certified as eligible for promotion to job before he entered military service and was prevented from taking next promotional examination, held that under statute plaintiff was entitled to same status of eligibility until next promotional examination after his return from service, and following his return from service he was eligible for promotion to chief of detectives prior to next examination, and action of city council in confirming another for office of Chief of Detectives was illegal. *Gibbens* v. *Sioux City*, 45 N. W. (2d) 842 (Iowa, Feb. 6, 1951).

Income Tax—City May Levy When State Has Not Already Pre-empted Field

Where city taxpayer brought action against Mayor of Youngstown to enjoin enforcement and collection of income tax under ordinance passed as emergency measure, held city had authority to levy and collect income tax as that field had not been pre-empted by state. *Humphrey* v. *Henderson, Mayor*, 96 N. E. (2d) 41 (Ohio App. Mar. 30, 1950).

Franchise—Authority of City to Grant Where Plant Is Inadequate

In action to enjoin city from carrying out terms of ordinance granting 10-year franchise to public-service company to supply additional electricity to city for two new industries, held that under statute allowing municipal corporations to regulate use of streets, viaducts, sidewalks, public grounds, etc., city council could pass ordinance granting public-service corporation franchise to supply additional electrical power when municipally owned plant could not furnish all that was needed for city and new industries. *City of Galion* v. *City of Galion*, 96 N. E. (2d) 881 (Ohio, Feb. 7, 1951).

Housing—Constitutionality of State Housing Authority Law Upheld

In action testing constitutionality of state housing-authority law, held that such authority created for development of low-rent housing and slum clearance projects was municipal corporation created for public governmental purposes and vesting of authority with right of eminent domain and exempting its property from taxation did not violate any state or federal constitutional provisions. *McLaughlin* v. *Housing Authority of City of Las Vegas*, 227 Pac. (2d) 206 (Nev., Jan. 31, 1951).

Playgrounds—Liability of City for Injuries Sustained On

Where plaintiff brought action against city to recover for injuries sustained on playground operated by defendant, held that voluntary and knowing exposure to risk involved in playing softball on public playground precluded recovery. *Scala* v. *City of New York*, 102 N. Y. S. (2d) 790 (N. Y. Sup. Ct., Kings Co., Feb. 7, 1951).

Housing—Right of City to Construct Public Housing Project—Issuance of General-Obligation Bonds

In action against city for declaratory judgment to determine whether city had authority to finance housing project, held that under certain state statutes city could finance veterans' housing project by donating one-third of cost of construction, and issuing, without referendum, city's general-obligation bonds for two-thirds amount of construction cost, and loan such amount to city housing authority whereby city would receive note secured by mortgage, when voters have not filed petition for referendum and city council has not adopted resolution requiring referendum. *Palfuss* v. *City of Milwaukee*, 46 N. W. (2d) 208 (Wis., Feb. 6, 1951).

Eminent Domain—Authority of City To Make Use of When Completion Of Project Uncertain

In action against County to enjoin threatened condemnation of real estate, held that where county was to condemn land, and nonprofit corporation would construct war memorial, project was so uncertain of being completed that taking of land by county would not be for public purpose and injunction was granted. *Schumm* v. *Milwaukee County*, 45 N. W. (2d) 673 (Wis., Jan. 9, 1951).

Licenses—Ordinance Regulating Music-Reproducing Systems Upheld

Where plaintiff filed petition against mayor for declaratory judgment to determine validity of licensing ordinance regulating operation of centralized music-reproducing systems and coin-operated music-reproducing instruments, held that city under its police power had sufficient authority to regulate and control installation of such music-reproducing instruments in city. *Marine Corps League, et al* v. *Benoit, Mayor, et al.*, 78 Atl. (2d) 513 (N. H., Feb. 6, 1951).

Lotteries—Power of City to License

In action to enjoin city from issuing licenses and expending tax funds in carrying out terms of ordinance that prohibited establishment, promotion, or conduct of any game of chance unless licensed by city, held that under state constitutional provision prohibiting lotteries or sale of lottery tickets, neither state legislature nor city council could authorize licensing to conduct lottery and sale of lottery tickets for charitable purposes or any other purpose. *Kraus* v. *City of Cleveland*, 95 N. E. (2d) 314 (Ohio App., Cuyahoga Co., Dec. 18. 1950).

Nuisances—Mandamus to Compel District Attorney to Prosecute Action for Abatement of

In mandamus action to require county district attorney to institute proceedings to abate operation of house of prostitution, held that District Attorney was proper officer to institute such action and writ was granted. *Board of Supervisors of County of Los Angeles* v. *Simpson*, 227 Pac. (2d) 14 (Cal., Feb. 2, 1951).

Parking—Ordinance Forbidding Parking, Loading, and Unloading in Certain Areas—Upheld

In action to enjoin city from interfering with loading and unloading of plaintiff trucks on streets of city, held that ordinance affecting plaintiffs which forbade any parking within certain distances of entrance to city fire and police stations was valid exercise of city's police power. *Sandona* v. *City of Cle Elum*, 226 Pac. (2d) 899 (Wash., Jan. 12, 1951).

Labor Unions—Taxpayers Suit to Prevent City Council Bargaining

In action by taxpayer to enjoin council from entering into collective bargaining agreement with labor union representing employees of municipal utility, held that plaintiff taxpayers were without right to seek such injunction because utilities involved operated independently of general-revenue fund and alleged increased burden of operating municipal utilities would not result in increase of taxes for taxpayer. *Golden* v. *City of Flora*, 96 N. E. (2d) 506 (Ill., Jan. 18, 1951).

Storm Sewers—Discharge of Waters Into Brook on Plantiff's Land—Estoppel

In action brought against city to enjoin further discharge of storm and surface waters on plaintiff's property from storm sewer constructed and maintained by city, held that since plaintiff had knowledge of such construction and assented to emptying water into natural brooks which carried water across plaintiff's land, and he enjoyed benefits from such drainage system, plaintiff would be estopped from complaining of inconvenience caused. *Gould & Eberhardt, Inc.*, v. *City of Newark*, 78 Atl. (2d) 77 (N. J., Jan. 22, 1951).

Streets—Power of City to Abolish Public Street

In action involving validity of ordinance of City of Richland in abolishing public street, held that city had authority delegated to it by state legislature to abolish or close public street, notwithstanding fact that charter did not specifically confer authority to abolish or close streets. *Harbuck* v. *Richland Box Co.*, 63 S. E. (2d) 333 (Ga., Jan. 10, 1951).

Tax Liens—City Not Allowed to Assert Liens Against Unpaid Condemnation Awards

In proceeding by City of New York to assert unpaid taxes and lien against condemnation awards previously granted to private corporations, held that tax assessment and tax lien with respect to certain property condemned by city was invalid insofar as lien would be asserted against award given to owner or property in condemnation proceeding. *In re Harlem River Drive*, 102 N. Y. S. (2d) 360 (N. Y. Sup. Ct., N. Y. Co., Jan. 31, 1951).

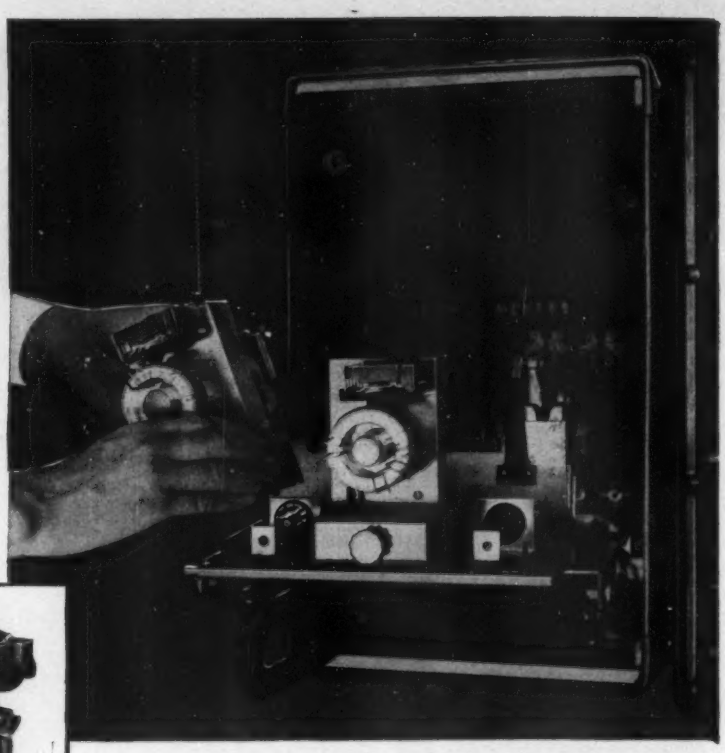
Street Railways—Increase in Fares Allowed by Public Utility Commission

Where Public Utility Comission of State of Pennsylvania allowed increase in fares for street railways of Pittsburgh Railway Company and Pittsburgh Motor Coach Company and City of Pittsburgh appealed from such determinations, held that evidence sustained the increase and such increase was not unfair and discriminatory. *City of Pittsburgh* v. *Pennsylvania Public Utility Commission*, 78 Atl. (2d) 35 (Pa., Jan. 12, 1951).

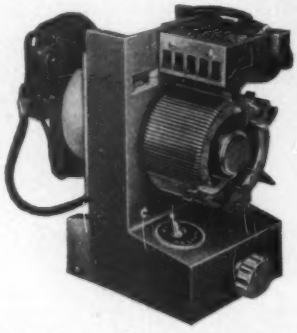
Waterworks—Application by Residents Adjacent to City to Have Water Supply Extended

Where property owners adjacent to city filed complaints with state public utility commission to have city water supply extended to their property, and commission ordered such extension, held on appeal by city that order must be set aside as probable cost of installing such extension was estimated by commission without any supporting evidence. *City of Altoona* v. *Pennsylvania Public Utility Commission*, 77 Atl. (2d) 740 (Pa. Super., Jan. 12, 1951).

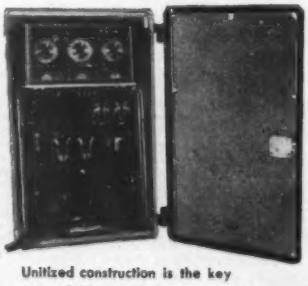
The Controller that grows with traffic!



You can convert a one-dial controller to two dials by just plugging in the second dial unit and its latch relay.



Each dial unit has its own synchronous motor, timing gear, dial contacts and timing keys.



Unitized construction is the key note of this new design controller—thus major parts can be readily replaced for servicing in a matter of minutes.

This is General Electric's new expansible controller. Buy it as a one-dial unit. Use it with or without interconnection. As traffic volume builds up or as conditions change just plug in a second dial unit—or a third. That's how easy it is to keep your traffic-control system growing with traffic!

This new traffic controller is a finer piece of equipment mechanically and electrically—as well as completely new in design. It greatly simplifies your planning and buying; it increases reliability and cuts maintenance. Let your nearest G-E Apparatus Sales Office or traffic control distributor show you how. Apparatus Department, General Electric Company, Schenectady 5, N. Y.

GENERAL ELECTRIC

Recent City Manager Appointments

ROY E. ADAIR has moved from Konawa, Okla., to become the first manager of Tonkawa, Okla.

PHILIP F. ALLARD, formerly city clerk and acting manager, has now been officially appointed as the first manager of Grosse Pointe Woods, Mich.

The first manager of Santa Anna, Texas, is RICHARD D. BASS.

Corbin, Ky., has appointed J. D. BAUGHMAN as its new manager, succeeding HUGH FINLEY. Mr. Baughman was formerly the manager of Albany, Ore.

LEONARD L. BISHOP, JR., is now manager of two towns in Maine. He was recently appointed the first manager of Levant, while continuing as manager of Carmel.

The first manager of Ipswich, Mass., is JOSEPH R. COUPAL, JR., who was the assistant manager at Concord, N. H.

S. WALDO BURGESS has been succeeded by JAMES V. COYNE, JR., as manager of Limestone, Maine.

THOMAS E. DUFF, formerly Administrative Assistant for the Department of Streets and Engineering in Springfield, Mass., is the new manager of Middlebury, VT. He succeeds E. E. LOTHROP.

Oxford, Maine, has appointed one of its former selectmen, RALPH EDWARDS, as its first town manager. Mr. Edwards has also been a State Representative and State Senator.

HERBERT D. FRITZ is leaving the managership of Marshall, Mo., to become the new manager of Lexington, Ky. He succeeds HAROLD CHEEK, who recently became manager of Niagara Falls, N. Y.

PRESTON C. KING is the new manager of Boothbay, Maine, succeeding PHILIP BLAKE. At the time of his appointment, Mr. King was assistant to the manager of Brunswick, Maine.

WILLIAM H. LANGE has been appointed manager of Marysville, Mich., to replace WILLIAM B. WEBB. Mr. Lange resigned as manager of Norway, Mich., to accept the appointment.

FRANK LAWLER is leaving the managership of Abilene, Kans., to become manager of Newton, Kans., replacing ALLISON SCHROEDER.

Fort Lauderdale, Fla., has appointed ROBERT K. LOWRY to succeed FRED D. RANKINS as city manager. Mr. Lowry was Director of Public Works and Purchasing Agent for the city.

The administrative assistant of Worcester, Mass., FRANCIS J. MCGRATH, has now been appointed manager of the city. He takes the place of EVERETT F. MERRILL, who has returned to his private business.

ROSS MILLER is leaving Berkeley, Calif., to become the first manager of Modesto, Calif.

When GEORGE YOUNG retired on May 10 from the managership of Glencoe, Ill., he was succeeded by his assistant, ROBERT B. MORRIS.

GEORGE K. NICOL, formerly manager of Hart, Mich., is the new manager of Clifton Forge, Va.

ELTON M. RICH has succeeded FRANK E. RILEY as town manager of Monroe, Maine. Mr. Rich is also retaining his position as high-school principal.

Brownville, Maine, has appointed ROLLIN THURLOW, a former selectman of Lee, Maine, to succeed JAMES M. ORDWAY as town manager.

ALLEN L. TORREY, former manager of Lancaster, N. H., was chosen by Camden, Maine, to replace PERCEY KELLER, who retired May 1 after 19 years as manager of Camden.

Coronado, Calif., has officially appointed GLENN WADE as manager of the city. Mr. Wade was planning director for the city and had been acting as manager for several months.

The first manager of Perrytown, Texas, is J. B. WHIGAM.

ALLEN L. WILCOX has moved from Norway, Maine, to become the first manager of Lisbon, Maine.

CLARENCE E. RIDLEY
Director
International City Managers' Association

Representative Municipal Bond Sales
May 1-9, 1951

Date of Sale		*Amount*	*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Percent*
5-1	Wichita, Kan.	$ 2,043,070	Improvement	5-1/2	1.557
5-1	Roanoke, Va.	4,000,000	Water	15-1/2	1.888
5-2	New Castle, Ind.	920,000	Water revenue	15-5/6	2.529
5-7	Black Hawk County, Iowa	520,000	County home	10-1/4	1.605
5-7	San Diego County, Calif.	875,000	Juvenile hall	10-1/6	1.917
5-8	State of Michigan	65,000,000	Hospital	11-1/2	1.5696
5-8	Erie, Pa.	1,000,000	Improvement	10-1/2	1.682
5-8	Pittsburgh, Pa.	3,200,000	Various	10-1/2	1.6968
5-8	Prince George's Co., Md.	3,300,000	School	10-1/2	2.1821
5-9	Akron City School Dist., Ohio	6,720,000	School	11-1/2	1.994
5-9	Chicago, Ill.	17,400,000	Improvement	9-3/4	1.8707
5-9	Portland, Me.	1,250,000	Improvement	10-1/4	1.501
5-9	San Jose, Calif.	3,700,000	Sewer	10-1/2	1.8396
5-9	State of Tennessee	8,625,000	Improvement	10	1.6332

Philadelphia Combats Public Apathy

THE City of Philadelphia has started a $50,000 campaign to "sell" Philadelphia to its citizens and to the world at large.

The program is financed by a City Council appropriation made to the Commercial Museum, Exhibition and Convention Halls "for and toward the purpose of disseminating information about the City of Philadelphia at home and abroad and initiating a long-range program to this end."

Henry Klein has been appointed full-time director of the program. He and his staff will occupy offices in the Commercial Museum. Promotion director for a number of civic enterprises, he is also president of the Adult Education Council and a member of the board of directors of the Junto Adult School.

The first project in the drive is the making of a color motion picture showing the most interesting and important facets of Philadelphia life. It will be available in September in 15-minute and 30-minute lengths. The film will be offered to schools, service clubs, fraternal and social groups, and television stations.

The new program will also promote all celebrations, events, and institutions sponsored by the city, in the interest of greater public information and appreciation.

Practical Values Of "Uniform" Accounting

The practical values of "uniform" accounting, as recommended by the National Committee on Governmental Accounting, are mainly two, declared C. C. Ludwig, Executive Secretary, League of Minnesota Municipalities, at a recent finance officers meeting:

1. To facilitate intergovernmental comparisons.
2. To encourage standard practice, not only in accounting techniques but in broad questions of fiscal policy—such as the number and rigidity of funds, and the scope of the budget process.

Mr. Ludwig pointed out:

In spite of our home-rule emphasis, it is a governmental fact of life that municipalities no longer exist in isolation. They are part of a governmental service team, federal-state-local, which ministers to needs of the citizens who live in cities and who deserve cooperative service from their public officials regardless of jurisdictional lines.

Uniform and reliable financial statistics not only are a tool for better municipal government, but have a definite money value in the bond market and in connection with justifying federal and state aid. They encourage citizen understanding and support of government.

Conventions — When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

June 7-8—Springfield, Mass.
NEW ENGLAND SEWAGE WORKS ASSOCIATION and NEW YORK SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Fourth Joint Meeting (Hotel Kimball). Sec., (New England) Walter E. Merrill, 511A State House, Boston 33, Mass.; (New York) Ralph E. Sweeney, 21 N. Broadway, White Plains, N. Y.

June 8-9—Seattle, Wash.
ASSCIATION OF WASHINGTON CITIES. Annual Convention (Olympic Hotel). Exec. Sec., Chester Biesen, 250 Smith Hall, University of Washington, Seattle 5, Wash.

June 11-13—London, Ontario, Can.
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Conference (Hotel Lincoln). Exec. Dir., George S. Mooney, Office 22, Mount Royal Hotel, Montreal, Quebec, Canada.

***June 13-15—Washington, D. C.**
PRESIDENT'S HIGHWAY SAFETY CONFERENCE. Annual Conference (Interior Department Auditorium). Gen. Chairman, Philip B. Fleming, President's Highway Safety Conference, General Services Bldg., Washington 25, D. C.

June 13-17—Mackinac Island, Mich.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Convention (Grand Hotel). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

June 14-16—Niagara Falls, N. Y.
NEW YORK STATE CONFERENCE OF MAYORS AND OTHER MUNICIPAL OFFICIALS. Annual Meeting (Hotel Niagara). Exec. Sec., Morgan Strong, 6 Elk St., Albany, N. Y.

June 14-16—Rochester, Minn.
LEAGUE OF MINNESOTA MUNICIPALITIES. Annual Convention (Municipal Auditorium). Exec. Sec., C. C. Ludwig, 15 University Library, Minneapolis 14, Minn.

June 15—New York, N. Y.
ASSOCIATION OF MUNICIPAL PUBLIC RELATIONS OFFICERS. Annual Conference (Hotel Roosevelt). Exec. Dir., Henry Davis Nadig, 341 Madison Ave., New York 17, N. Y.

June 18-20—Washington, D. C.
AMERICAN CONGRESS OF SURVEYING AND MAPPING. Annual Meeting (Hotel Shoreham). Address inquiries to Congress at P. O. Box 470, Benjamin Franklin Station, Washington 4, D. C.

June 18-22—State College, Pa.
FOURTH ANNUAL WATER WORKS SCHOOL OF PENNSYLVANIA STATE COLLEGE. Director, R. Rupert Kountz, School of Engineering, State College, Pa.

***June 20-22—Chattanooga, Tenn.**
TENNESSEE MUNICIPAL LEAGUE jointly with TENNESSEE MUNICIPAL FINANCE OFFICERS ASSOCIATION. Annual Meeting. Address inquiries to Tennessee Municipal League, 610-11 Cotton States Bldg., Chattanooga, Tenn.

June 20-22—Columbus, Ohio
OHIO SEWAGE AND INDUSTRIAL WASTES TREATMENT CONFERENCE. Annual Convention (Neil House). Sec.-Treas., John E. Richards, 301 Ohio Depts. Bldg., Columbus, Ohio.

June 24-26—Philadelphia, Pa.
PENNSYLVANIA ASSOCIATION OF TOWNSHIP COMMISSIONERS. Annual Meeting (Bellevue-Stratford Hotel). Sec.-Treas., H. A. Fritschman, 2325 Darby Rd., Havertown, Pa.

***June 25-26—Washington, D. C.**
NATIONAL HOUSING CONFERENCE. Annual Meeting (Hotel Statler). Exec. Vice-Pres., Lee F. Johnson, 1025 Vermont Ave., NW., Washington 5, D. C.

June 25-27—Detroit, Mich.
MICHIGAN ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Gratiot Inn). Exec. Sec., E. B. Wilson, Detroit Leland Hotel, Detroit 26, Mich.

June 25-29—State College, Pa.
FOURTH ANNUAL SEWAGE WORKS SCHOOL OF PENNSYLVANIA STATE COLLEGE. Director, R. Rupert Kountz, School of Engineering, State College, Pa.

June 25-30—Brighton, England
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Annual Congress. Gen. Sec., N. Arkema, 5 Paleisstraat, The Hague, Netherlands.

June 28-30—Biloxi, Miss.
MISSISSIPPI MUNICIPAL ASSOCIATION. Annual Convention (Buena Vista Hotel). Mgr., George L. Sugg, Lampton Building Annex, P. O. Box 531, Jackson, Miss.

June 29—Trenton, N. J.
AMERICAN WATER WORKS ASSOCIATION. New Jersey Section. Summer Meeting (Inspection of De Laval Steam Turbine Company Plant, and Luncheon). Sec., C. B. Tygert, Box 178, Newark 1, N. J.

July 5-7—Milwaukee, Wis.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (Hotel Schroeder). Sec.-Treas., Keith L. Seegmiller, 1616 Eye St., NW., Washington 6, D. C.

July 24-26—New York, N. Y.
NEW YORK STATE ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (Hotel New Yorker). Exec. Sec., R. W. Morris, 328 State Tower Bldg., Syracuse, N. Y.

Aug. 14-17—Grand Rapids, Mich.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Convention (Pantlind Hotel). Gen. Mgr., James E. Jagger, 22 E. 38th St., New York, N. Y.

Aug. 20-22—State College, Pa.
PENNSYLVANIA WATER WORKS OPERATORS' ASSOCIATION. Annual Convention (Temporary Union Bldg.). Sec.-Treas., R. Rupert Kountz, School of Engineering, State College, Pa.

Aug. 22-24—State College, Pa.
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Conference (Pennsylvania State College). Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 27-30—Washington, D. C.
ILLUMINATING ENGINEERING SOCIETY. National Technical Conference (Hotel Shoreham). Exec. Sec., A. D. Hiackley, 1860 Broadway, New York 23, N. Y.

Aug. 27-31—Cincinnati, Ohio
NATIONAL SHADE TREE CONFERENCE. Annual Convention (Netherland-Plaza Hotel). Sec.-Treas., L. C. Chadwick, Ohio State College, Columbus, Ohio.

***Sept. 5-6—Plattsburgh, N. Y.**
AMERICAN WATER WORKS ASSOCIATION—New York Section. Fall Meeting (Hotel Champlain). Sec.-Treas., R. K. Blanchard, 50 W. 50th St., New York 20, N. Y.

Sept. 5-7—Washington, D. C.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Convention (Hotel Statler). Sec., Louis D. Brown, 30 Rockefeller Plaza, New York 20, N. Y.

***Sept. 9-11—Fargo, N. D.**
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention (Hotel Gardiner). Exec. Sec., Myron H. Atkinson, Bismarck, N. D.

Sept. 9-13—Poland Spring, Maine
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Conference. Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago, Ill.

***Sept. 10-12—Boston, Mass.**
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Convention (Hotel Statler). Sec., Joseph C. Knox, 73 Tremont St., Boston 8, Mass.

***Sept. 10-12—Pocono Manor, Pa.**
PENNSYLVANIA MUNICIPAL AUTHORITIES ASSOCIATION. Annual Conference (Pocono Manor Inn). Sec., Charles F. Leedecker, 103 Sparks Bldg., State College, Pa.

Sept. 12-14—Minneapolis, Minn.
AMERICAN WATER WORKS ASSOCIATION—Minnesota Section. Annual Conference (Hotel Nicollet). Sec.-Treas., Leonard N. Thompson, 216 Court House Bldg., St. Paul 2, Minn.

***Sept. 13-15—Johnstown, Pa.**
LEAGUE OF CITIES OF THE THIRD CLASS IN PENNSYLVANIA. Annual Convention (Hotel Stanwix). Pres., Walter E. Greenwood, City Hall, Harrisburg, Pa.

***Sept. 13-15—Saranac Inn, N. Y.**
COUNTY OFFICERS' ASSOCIATION OF NEW YORK STATE. Annual Convention (Saranac Inn). Exec. Sec., Donald C. Scribner, County Bldg., Johnstown, N. Y.

***Sept. 13-15—Wilkes Barre, Pa.**
PENNSYLVANIA STATE ASSOCIATION OF COUNTY COMMISSIONERS. Annual Convention (Sterling Hotel). Sec.-Treas., Herbert S. Bolger, Court House, Holidaysburg, Pa.

***Sept. 16-18—Roanoke, Va.**
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Hotel Roanoke). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

Sept. 16-19—Detroit, Mich.
AMERICAN PUBLIC WORKS ASSOCIATION. Annual Convention (Veterans Memorial Bldg.). Exec. Dir., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Sept. 19-21—St. Joseph, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Convention (Whitcomb Hotel). Exec. Sec., T. L. Vander Velde, Dept. of Health, Lansing 4, Mich.

***Sept. 19-21—Yankton, S. D.**
SOUTH DAKOTA WATER AND SEWAGE WORKS CONFERENCE. Annual Convention (Charles Gurney Hotel). Sec.-Treas., Charles E. Carl, State Dept. of Health, Pierre, S. D.

Sept. 23-26—New York, N. Y.
AMERICAN CHAMBER OF COMMERCE EXECUTIVES. Annual Conference (Hotel Commodore). Exec. Sec.-Treas., Miss Elizabeth Glenn, 1615 H St., NW., Washington, D. C.

Sept. 24-25—Denver, Colo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Convention (Cosmopolitan Hotel). Exec. Sec., George J. Turre, Board of Water, Denver, Colo.

***Sept. 24-27—Los Angeles, Calif.**
INSTITUTE OF TRAFFIC ENGINEERS. Annual Convention (Ambassador Hotel). Exec. Sec., Fred W. Hurd, 211 Strathcona Hall, New Haven 11, Conn.

Oct. 1-4—Cincinnati, Ohio
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Netherland Plaza Hotel). Gen. Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

***Oct. 1-5—Boston, Mass.**
NATIONAL RECREATION CONGRESS. Annual Convention (Hotel Statler). Sec., T. E. Rivers, 315 Fourth Ave., New York, N. Y.

Oct. 3-5—Watertown, S. D.
SOUTH DAKOTA MUNICIPAL LEAGUE. Annual Convention. Sec., R. D. Falk, Law Bldg., University of South Dakota, Vermillion, S. D.

***Oct. 7-9—Peoria, Ill.**
ILLINOIS MUNICIPAL LEAGUE. Annual Convention (Hotel Pere Marquette). Exec. Dir., A. L. Sargent, 537 S. 4th St., Peoria, Ill.

(*Continued on page 161*)

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Municipal and Civic Publications

New Municipal Yearbook

THE MUNICIPAL YEARBOOK, 1951—*International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill. 18th Edition. June* 1951. $10.

The new edition of *The Municipal Yearbook* brings up to date the regular abundant features of this valuable reference volume, including major sections on Governmental Units, Municipal Personnel, Municipal Finance, Municipal Activities, and Directories.

In addition, there are four chief new features. Considerable emphasis is put on the 1950 U. S. Census data, with an analysis of changes since 1940, including the provision of municipal services in selected metropolitan areas. Another important new feature is a section on centralized purchasing in cities over 25,000. This section contains individual-city data showing such information as whether the city has centralized its purchasing activities, by whom the central purchasing agent is appointed, number of employees and operating expenditures for the central purchasing office, total cost of supplies and equipment bought in 1950 by each city, use of annual supply contracts, etc.

Detailed information is also given on public-housing activities in cities of over 100,000 population, including a table showing the organization of the housing authority, number of employees, and number of units managed in each city. Still another important new feature is a large section devoted to building-inspection activities in cities over 10,000.

County Plan for House Numbering

10,000 PLUS, MASTER PLAN OF UNIFORM HOUSE NUMBERING FOR SANTA CLARA COUNTY, CALIFORNIA—*A portion of the Streets and Highways Master Plan. Santa Clara County Planning Commission, San Jose, Calif. November* 1950. *Mimeo.* 26 *pp.*

An excellent report which sets forth a uniform county-wide system of house numbering and a uniform system of street naming. The report recommends that local city-address systems be extended into unincorporated county territory only when the territory is annexed to the local city. The house-numbering plan is so designed that an automobile speedometer will locate any address, starting at base streets. Included with the report are appendices which contain the ordinance prescribing the system, the notice of public hearing, resolution, and opinion of the county counsel regarding the house-numbering plan.

Revitalizing Small Communities

THE HUMAN COMMUNITY, ITS PHILOSOPHY AND PRACTICE FOR A TIME OF CRISIS—*By Baker Brownell. Harper and Bros., 49 E. 33rd St., New York* 16, *N. Y.* 1951. 305 *pp.* $4.

This book, a thoughtful study of the philosophy of community living, sets in striking contrast the essentials of friendly and cooperative relations among human beings with the pattern of impersonal organization that prevails in much of America today. It shows why modern urban life weakens many individuals by isolating them from basic responsibilities. Emphasizing the need for direct personal relations in day-to-day living, Professor Brownell affirms the importance of the small community as the foundation of a healthy democratic society.

Recreation Program for Older People

A PLACE IN THE SUN—*By Georgene E. Bowen. Philadelphia Recreation Association,* 1625 *Spruce St., Philadelphia* 3, *Pa.* 1950. 30 *pp.*

A brief, illustrated description of some of the many activities for older people conducted by the Philadelphia Recreation Association. The program, and many of the projects and suggestions, should be of interest in other communities.

Fly-Control Packet

FLY-CONTROL PACKET—*Available from Engineering Branch, Communicable Disease Center, Public Health Service, Federal Security Agency, Atlanta, Ga. March* 1951. *Assorted Materials.*

Prepared for use in community fly-control programs, the material in this packet contains a wealth of practical information and public-relations suggestions for local officials. Included in the packet is a 19-page mimeographed pamphlet including sample talks and program-development suggestions; a 34-page pamphlet on "The Control of Domestic Flies"; material on how to conduct a block-by-block sanitary survey; a list of 14 throw-away pamphlets on sanitation and fly biology; a 19-page pamphlet containing 14 suggested press releases on fly control; a list of available films and slides; a pamphlet on "Refuse Handling," and a selected bibliography.

Should Gambling Be Legalized?

GAMBLING—SHOULD IT BE LEGALIZED?—*By Virgil W. Peterson. Published by Charles C. Thomas,* 301-327 *E. Lawrence Ave., Springfield, Ill.* 1951. 158 *pp.* $2.75.

The author of this book is one of the nation's foremost experts on gambling and its control, and is now serving as operating director of the Chicago Crime Commission. The factual information he reveals in this book affords uncontrovertible proof that the existence of organized illegal gambling in any community is incompatible with the existence of good government in that community. His comments on proposals for the legalization of gambling make particularly worth-while reading.

Mr. Peterson concludes, "History clearly reflects that legalized gambling in America has never eliminated any abuses. Instead, it has greatly increased economic, social, and political evils. There is no place for legalized gambling in an enlightened society."

Water Pollution Report

WATER POLLUTION IN THE UNITED STATES—*Public Health Service, Federal Security Agency. Water Pollution Series No.* 1. *Available from Superintendent of Documents, Washington* 25, *D. C.* 1951. 44 *pp.* 35 *cents.*

This report, aimed primarily at the general public, sets forth the first national summaries of data from initial state and federal studies for the development of comprehensive pollution-abatement programs for the nation's waterways. They indicate that to meet present needs for 10,000 new waste-treatment plants, replacements, additions, or enlargements, and to keep up with industrial expansion and population growth over the next decade, will require public and private investments of $9,000,000,000 to $12,000,000,000. Moreover, the needs of 1,600 municipalities and 5,500 industrial establishments are still undetermined.

This handsomely illustrated and printed booklet should prove useful to public officials as a basic public-information document on pollution problems.

Traffic Officials, Please Note!

TURN CONTROLS IN URBAN TRAFFIC—*Prepared by The Eno Foundation for Highway Traffic Control, Saugatuck, Conn.* 1951. 90 *pp.*

A factual basis on which to establish traffic-turning regulations, with numerous illustrations and tables. Districts where controls are applied, benefits derived, reasons for discontinuing controls or using them only part time, are analyzed; and much of the information accumulated in the surveys, such as volume of traffic and volume of pedestrians, accident data, and traffic and pedestrian delay, is incorporated in the formulas for turning control developed in this study.

Report on Parking in 1951

PARKING, A 1951 GUIDE POST TO MUNICIPAL ACTION—*By Ben Salomen. American Municipal Association,* 1313 *E. 60th St., Chicago* 37, *Ill. Publication BFN. April* 1951. 20 *pp.* $1.

This is a well-written, easy-to-read report which throws the spotlight on the tremendous impact of the motor vehicle on the American municipal scene. The report describes the situation in general, and then gives numerous case examples of community actions throughout the country with regard to traffic and parking problems, reporting on various techniques and financial approaches that have been used successfully. Adding to the usefulness of the publication is an excellent, concise bibliography. City officials will find valuable also the comparative figures on growth in vehicle registrations, auto ownership, mileage traveled, and streets and highways constructed over the last 10 years.

New York's Rezoning Plan

PLAN FOR REZONING THE CITY OF NEW YORK—*A Report Submitted to the City Planning Commission by Harrison, Ballard and Allen. October* 1950. *Published by New York City Planning Commission, Municipal Building, New York* 7, *N. Y. Illus.* 290 *pp.*

This is, without doubt, the most comprehensive and carefully compiled zoning proposal for a city ever to be published. Prepared by the consultant firm of Harrison, Ballard and Allen, the report also represents the best thinking of a large number of civic leaders who were grouped into Technical Advisory Committees for the purpose of aiding and advising on the staff efforts.

Before the report was drafted, the zoning ordinances of all major American cities were examined, and the best points in each brought forward and studied. The proposed new zoning ordinance introduces a number of controls, simple to understand and apply, which should prove adaptable to new conditions. The primary new controls proposed are the Floor Area Ratio, Angle of Light Obstruction, Area for Light Access, Usable Open Space, and Off-Street Parking and Loading Berth provisions.

New York's experience and its approach, as evidenced in this report, should contribute substantially to the rezoning movement now actively under way throughout the country. For a longer analysis of this plan, see page 99 of this issue.

For Public Understanding of New Zoning

A REVIEW OF THE PROPOSALS FOR REZONING NEW YORK CITY—*By New York Chapter, American Institute of Architects,* 115 *E. 40th St., New York* 16, *N. Y.* 1951. 60 *pp.*

To promote the widest public understanding of the report on the proposed new zoning ordinance for New York City, a simplified analysis of it has been made available by the New York Chapter, American Institute of Architects. Prepared by Bruno Funaro, in association with Geoffrey Baker, the booklet is illustrated and written in layman's language.

The authors state that the study by the consultants of the problems involved has been carried out with thoroughness and intelligence; that the greater flexibility allowed in planning will produce better buildings, and that, by the new provisions for light and air, open space, and the storage of vehicles, the public interest will be better served than in the present ordinance.

City Government Employment Figures

CITY EMPLOYMENT IN 1950—United States Bureau *of the Census* (*Government Employment*: 1950, *No.* 6), *Washington, D. C. April* 1951. *Tables.* 44 *pp.*

The report shows that in October 1950, city governments employed 1,311,000 persons and city payrolls for the month totaled $290,000,000—the highest figures on record. Between October 1949 and October 1950 city employees increased 30,000 in number.

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New York City Cleveland Los Angeles San Francisco Seattle

Assessment of Mansions

ASSESSORS' PROBLEMS WITH MANSIONS—*By Albert E. Champney. Article in* Assessors' News-Letter, *April 1951 issue. Published by National Association of Assessing Officers, 1313 E. 60th St., Chicago 37, Ill. $1 per copy.*

An article by the director of the Wayne County Bureau of Taxation, Detroit, Mich., which discusses the legal and appraisal problems involved in the assessment of mansion homes, and states clearly and concisely the responsibilities of the assessing officer in dealing with such problems.

New Jersey Economic Survey

AN ECONOMIC SURVEY OF NEW JERSEY—*Prepared by Dr. Homer Hoyt. Available from Division of Planning and Development, Department of Conservation and Economic Development, State of New Jersey, 520 E. State St., Trenton 7, N. J. 1951. 88 pp. $1.*

This is a comprehensive state economic survey which includes information on New Jersey manufacturing, and other basic sources of employment. It emphasizes the importance to the state of commuters, transportation, tourists, and insurance. There are also chapters on prospects for growth of the basic industries of New Jersey (including commuters), income of New Jersey, economic characteristics, and economic future of the different regions of the state.

Small-Hospital Personnel

A STUDY OF STAFFING THE SMALL GENERAL HOSPITAL—LESS THAN 100 BEDS—*Prepared by Margaret K. Schafer, Nurse Consultant, under the Direction of John R. McGibony, Medical Director, Chief, Division of Medical and Hospital Resources. Public Health Services, Federal Security Agency, Washington 25, D. C. April 1950. 101 pp.*

The staffing of hospitals of less than 100 beds should be of special interest to groups planning hospitals under the Hill-Burton Hospital Construction Program. This survey of 41 small hospitals throughout the United States indicates what personnel is needed to render required services. It is composed largely of tables with accompanying explanatory comments. Clerical, household, dietary, surgical, medical, pharmaceutical, therapeutic, and nursing personnel requirements are analyzed, as are distribution of hospital beds and equipment.

Illinois Municipalities

CITIES AND TOWNS OF ILLINOIS—*By Karl B. Lohmann, University of Illinois Press, Urbana, Ill. March 1951. 110 pp. $2.50.*

This is an interesting panorama of Illinois municipalities which should encourage appreciation and understanding of urban environments and how they can be improved. Selected for study were 120 communities of varying size and character, from all sections of the state. The author is Professor of City and Regional Planning at the University of Illinois, and dedicates his book to the twin cities of Champaign-Urbana. The contents include chapters on Waterways and Railroads; Places and People; Streets and Roads; Industrial, Commercial, and Agricultural Centers, and Public Buildings, Municipal Parks and Community Planning.

Low-Rent Public Housing

PLANNING, DESIGN, AND CONSTRUCTION FOR ECONOMY—*Published by Housing and Home Finance Agency of the Public Housing Administration, Washington 25, D. C. December 1950. 94 pp.*

This release is based upon the more significant facts derived from an analysis of the first 100 low-rent public-housing programs submitted under the Housing Act of 1949. The purpose of the study is to show where costs can be cut without undue loss of quality. There are sections on operating costs of certain construction types, choice and planning of site, dwelling-building types, the dwelling-unit plan, the structural system and materials of construction, the mechanical system, details and equipment, and scope, design, and equipment for tenant activity. This study should be of great value to any community embarking on a public-housing program.

Proposals for Toronto Metropolitan Government

FINAL REPORT, COMMITTEE ON METROPOLITAN PROBLEMS—*Civic Advisory Council of Toronto, 85 St. Joseph St., Toronto, Ontario. March 1951. 58 pp.*

This report represents the culmination of more than two years of careful research and appraisal by a regional committee initiated by the Mayor of Toronto.

Two final proposals are made by the committee: (1) the immediate creation of a Metropolitan County Council, with step-by-step transference of functions from municipal councils to the County Council; or (2) the immediate creation of a Regional Authority with step-by-step implementation of the amalgamation. For either scheme the committee recommends a single assessment department, which would probably be based upon that of the present city, and might arrange for the gradual absorption, possibly on a contract basis, of present assessment staffs and the production of a uniform assessment.

The first scheme would involve transference of municipal services. In the amalgamation scheme, the major step would involve the stage-by-stage absorption of the areas to be added to the enlarged city—a geographical transfer by groups of municipalities rather than by services.

Impact of a Large Shopping Center on a Small Town

THE EFFECTS OF A PROPOSED REGIONAL SHOPPING CENTER UPON THE TOWN OF MOUNT PLEASANT—*By T. T. McCrosky. Report published in* Urban Land, *April 1951 issue. Official publication of the Urban Land Institute, 1737 K St., NW., Washington 6, D. C. 6 pp.*

Condensation of a comprehensive report by a firm of planning consultants on how a large shopping center would affect a small rural community located in upper Westchester County, N. Y. The consultants conclude that the location of the proposed center, at the crossroads of the county, would give it a logical attraction to merchandising executives and developers. They report that with suitable protective measures, which have been the subject of specific recommendations to the town board, the proposed shopping center is viewed as having, in the long run, no consequential adverse effects on the town.

Planning and Housing Reports Received

BALTIMORE, MD.—Signs of a Better Baltimore. Baltimore Housing Authority, 709 E. Eager St., Baltimore 2. March 1951. Illus. 11 pp.

CALIFORNIA—Community Redevelopment in California. Partial report of the Joint Interim Committee on Community Redevelopment and Housing Problems, State Capitol, Sacramento. Aug. 1950. 79 pp.

CAMBRIDGE, MASS.—Harvard Square Parking Study. Planning Board, City Hall Annex, 57 Inman St., Cambridge 39. November 1950. Mimeo. Tables. 21 pp.

CORAL GABLES, FLA.—Zoning Ordinances. Zoning Board. January 1951. Maps. 27 pp.

DADE COUNTY, FLA.—Planning, Zoning and Building. Dade County Planning Board, County Court House, Miami 31. Illus. 22 pp.

FAYETTEVILLE, N. C.—The Fort Bragg Story. American Houses, Inc., 165 W. 46th St., New York 19, N. Y. Illus. Unpaged.

GREENSBORO, N. C.—Redevelopment Plan for White Oak and Proximity Neighborhoods. Report by Eugene R. Martini, Planning Consultant, 175 Peachtree St., NE., Atlanta 3, Ga. Sept. 1950. Maps. 80 pp.

GREENVILLE, PA.—A Survey of the Local Parking Problem. Prepared by the Pennsylvania Economy League, Inc., Mercer County Branch, Room 302, Dollar Title Bldg., Sharon, Pa. February 1951. 33 pp.

MINNESOTA — Zoning. Information Service, League of Minnesota Municipalities, 15 University Library Bldg., Minneapolis 14. Mimeo. 63 pp.

NEW YORK, N. Y.—Planning Progress, 1940-1950. City Planning Commission, Municipal Bldg., New York 7. March 1951. Illus. 27 pp.

——Project Statistics, September 1950. New York City Housing Authority, 63 Park Row, New York 7. Tables. 12 pp.

ODESSA, TEXAS—A City Plan. Report to City Commission and Ector County Commissioners Court from City Planning and Zoning Commission. 1950. Illus. Maps. 75 pp.

PATERSON, N. J.—Paterson Redevelopment Program. City Housing Authority. Mimeo. Tables. Maps. 63 pp.

PENNSYLVANIA—Pennsylvania Plans. Local planning and zoning newsletter and information digest published by the Pennsylvania State Planning Board, Department of Commerce, Harrisburg. Vol. I, No. 1. January 1951. Single-fold.

PONTIAC, MICH.—Planning Pontiac's Future. City Plan Commission. 1950. Illus. Maps. Unpaged.

RALEIGH, N. C.—A General Land Use Plan for Raleigh. City Planning Commission. Jan. 1951. Mimeo. Map. Unpaged.

SEATTLE, WASH.—Pleasure Boat Moorage. City Planning Commission, 508 County-City Bldg., Seattle 4. October 1950. Mimeo. Illus. Tables. Maps. 56 pp.

UNITED STATES—Fixture Unit Ratings as Used in Plumbing System Design. Housing and Home Finance Agency, Washington, D. C. Housing Research Paper No. 15. March 1951. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Tables. 18 pp. 15 cents.

——Local Slum Clearance Programs. Office of the Administrator, Housing and Home Finance Agency, Washington 25, D. C. March 1951. Mimeo. Unpaged.

——Slum Clearance and Urban Redevelopment: The What and Why of Title I, Housing Act of 1949. Housing and Home Finance Agency. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Illus. Leaflet 10 cents.

UNITED NATIONS—Housing and Town and Country Planning Organizations. Department of Social Affairs, United Nations, New York, N. Y. Jan. 1951. Mimeo. 62 pp.

Other Reports Received

ALPINE, N. J.—Preliminary Report, Master Reference Plan, 1951. Planning Board. Mimeo. 12 pp.

ATHOL, MASS.—Annual Report of the Water Commissioners, 1950. Tables. 21 pp.

BALTIMORE, MD.—Pertinent Financial Data, as of January 1, 1951. Commison on Governmental Efficiency and Economy, Inc., Mercantile Trust Bldg., Baltimore 2. Tables. 16 pp.

BRIDGEPORT, CONN.—Statement of Condition, as of March 31, 1950. Office of the Comptroller. Tables. 153 pp.

CALIFORNIA—Legislative Reapportionment. By Margaret Greenfield. Bureau of Public Administration, University of California, Berkeley. March 1951. Mimeo. Tables. Maps. 57 pp. $1.25.

——State Regulation of Insurance. By Margaret Rohrer. Bureau of Public Administration, University of California, Berkeley. Mimeo. Tables. 49 pp. $1.

CATASAUQUA, PA.—Summary of Auditors' Report and Financial Statement for Year Ending Dec. 31, 1950. Tables. 2 pp.

CHICAGO, ILL.—Check-List of Publications Issued by Local Governing Bodies in Chicago and Cook County. City of Chicago Municipal Reference Library, 1005 City Hall. April 2, 1951. Mimeo. 3 pp.

CONNECTICUT—Business Review. Connecticut Development Commission, State Office Bldg., Hartford. Tables. Charts. 16 pp.

COOK COUNTY, ILL.—See listing above, for Chicago, Ill.

ERIE, PA.—Annual Report of Department of Accounts and Finance. January 1, 1951. Tables. 74 pp.

ESCANABA, MICH.—Escanaba City Government, Report for Fiscal Year Ended June 30, 1950. Office of City Manager. Mimeo. Tables. 41 pp.

FLORIDA—How Florida Cities Get Their Government. By Hulda Grobman. Public Administration Clearing Service, University of Florida, Gainesville. 1951. Civic Information Series No. 6. 10 pp.

GREENEVILLE, TENN.—Greeneville's Government.

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Bureau of Public Administration, University of Tennessee, Knoxville. Oct. 1950. Mimeo. Charts. Tables. 160 pp.

ILLINOIS—Proceedings of the 26th Illinois Fire College. Illinois Firemen's Association, University of Illinois, Urbana. 93 pp.

KOKOMO, IND.—City Clerk's Annual Report, Year Ending December 31, 1950. Tables. 77 pp.

LEBANON, CONN.—An American Community in Action. English language edition of pamphlet prepared for world-wide distribution. Limited distribution. United States Information Service, Washington, D. C. Illus. 23 pp.

LEXINGTON, KY.—Budget and Audit Report, 1950. Office of City Manager. Tables. 82 pp.

LITTLE ROCK, ARK.—Municipal Water Works, Annual Report. Illus. Tables. 68 pp.

LOUISIANA—Civil Service in the Louisiana Local Units of Government. By Emmett Asseff and R. B. Highsaw. Bureau of Government Research, Louisiana State University, Baton Rouge. 1951. 23 pp.

——Legislative Apportionment in Louisiana. By Emmett Asseff. Bureau of Government Research, Louisiana State University, Baton Rouge. 1950. Tables. 86 pp.

——Registration of Voters in Louisiana. By Alden L. Powell and Emmett Asseff. Bureau of Government Research, Louisiana State University, Baton Rouge. 1951. 19 pp.

——State Supervision of Local Finance in Louisiana. By Emmett Asseff, R. B. Highsaw, and C. E. Looper. Bureau of Government Research, Louisiana State University, Baton Rouge. 1951. 73 pp.

LOWER MERION TOWNSHIP, PA.—Your Municipality: Fifty Years of Local Government, 1900-1950. Township Building, 75 E. Lancaster Ave., Ardmore, Pa. 32 pp.

MASSACHUSETTS—The Bonded Indebtedness of the Commonwealth of Massachusetts. Massachusetts Federation of Taxpayers Associations, Inc., 11 Beacon St., Boston 8. Jan. 1, 1951. Mimeo. Tables. 14 pp.

MEXICO, MO.—Annual Budget, 1951-52. Compiled by Peter F. Roan, City Manager. Tables. 24 pp.

MICHIGAN—Financing Capital Requirements of Michigan Municipalities. By Matthew Carey, Municipal Finance Consultant, Penobscot Bldg., Detroit. Feb. 1948. 5 pp.

MIDLAND, MICH.—Annual Report, 1949-50. Illus. Tables. 66 pp.

MILFORD, DEL.—The Milford Story, Annual Report for 1950. 8 pp.

NEW JERSEY—Industrial Plant Protection. New Jersey Division of Civil Defense, Trenton. 15 pp.

NEW KENSINGTON, PA.—Annual Report of the Controller, year ending December 31, 1950. Mimeo. Tables. 29 pp.

NEW YORK, N. Y.—1950 Annual Report of the Port of New York Authority. 111 Eighth Ave., New York 11. Illus. 198 pp.

——First Report of the Special Committee on Civil Defense of the City Club of New York, 45 Park Ave., New York. 15 pp.

OAK PARK, ILL.—Annual Report of the Department of Public Works, 1950. Mimeo. Tables. 64 pp.

PHILADELPHIA, PA.—40th Annual Report of the Art Jury. Feb. 5, 1951. Illus. 31 pp.

POUGHKEEPSIE, N. Y.—Finances Survey Report. Part III, Expenditures and Debt. Poughkeepsie Area Development Association, Inc., 52 Market St., Poughkeepsie. Publication No. 10. April 1951. Mimeo. Tables. Charts. 32 pp.

RACINE, WIS.—A Survey of the Business Records and Procedures of the Racine Public Library. By Arthur Yabroff. Racine Public Library. Nov. 1950. Mimeo. 31 pp. $2.

ROANOKE, VA.—City Auditor's Financial Report, Fiscal Year Ended December 31, 1950. Tables. 67 pp.

TENNESSEE—Manual of Accounts for Tennessee Municipalities. By W. Harold Read, and William R. Snodgrass. Published by Municipal Technical Advisory Service. Study No. 22, Bureau of Research, College of Business Administration, University of Tennessee, Knoxville. 85 pp.

——Service and Security, Municipal Retirement in Tennessee. By Fred A. Lewis and Thomas Payne. Published jointly by the Bureau of Public Administration and the Municipal Technical Advisory Service, University of Tennessee, Knoxville. Feb. 1951. Mimeo. Tables. 150 pp.

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Conventions—When and Where

(*Continued from page 152*)

***Oct. 7-11—Detroit, Mich.**
CIVIL SERVICE ASSEMBLY. Annual Convention (Hotel Statler). Dir., Kenneth O. Warner, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 8-11—St. Paul, Minn.**
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual Meeting (Municipal Auditorium). Exec. Sec., W. H. Wisely, 325 Illinois Bldg., Champaign, Ill.

Oct. 8-11—St. Louis, Mo.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. Annual Convention (Hotel Statler). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 8-12—Chicago, Ill.
THIRTY-NINTH ANNUAL SAFETY CONGRESS AND EXPOSITION. Annual Convention (Stevens Hotel). Sec., R. L. Forney, 425 N. Michigan Ave., Chicago 11, Ill.

***Oct. 9-12—Washington, D. C.**
NATIONAL ASSOCIATION OF HOUSING OFFICIALS. Annual Convention (Hotel Statler). Dir., John M. Ducey, 1313 E. 60th St., Chicago 37, Ill.

Oct. 10-11—Des Moines, Iowa
LEAGUE OF IOWA MUNICIPALITIES. Annual Convention (Hotel Fort Des Moines). Exec. Sec.-Treas., Max A. Conrad, Burlington, Iowa.

***Oct. 14-17—Fort Worth, Texas**
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Convention (Texas Hotel). Sec.-Treas., Leslie A. Jackson, Robinson Memorial Auditorium, Little Rock, Ark.

Oct. 14-17—Pittsburgh, Pa.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Convention (Hotel William Penn). Exec. Dir., Walter H. Blucher, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 14-17—San Francisco, Calif.**
LEAGUE OF CALIFORNIA CITIES. Annual Convention. Exec. Dir., Richard Graves, Hotel Claremont Bldg., Berkeley 5, Calif.

***Oct. 15-18—Toronto, Canada**
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS. Annual Convention (Hotel Royal York). Sec., H. W. Anderson, 306 E. Lovell St., Kalamazoo, Mich.

Oct. 21-24—Mineral Wells, Texas
LEAGUE OF TEXAS MUNICIPALITIES. Annual Convention (Baker Hotel). Exec. Dir., E. E. McAdams, 108 E. 19th St., Austin 1, Texas.

Oct. 21-24—Washington, D. C.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Conference and Exhibit (Shoreham Hotel). Exec. Dir., Albert H. Hall, 730 Jackson Place, NW., Washington 6, D. C.

Oct. 25-27—Atlantic City, N. J.
AMERICAN WATER WORKS ASSOCIATION—New Jersey Section. Annual Fall Meeting (Hotel Madison). Sec., C. B. Tygert, Box 178, Newark, N. J.

Oct. 28-31—Daytona Beach, Fla.
FLORIDA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION, jointly with the Florida Section of the AMERICAN WATER WORKS ASSOCIATION. Annual Fall Meeting (Princess Issena Hotel). Sec.-Treas., Perry M. Teeple, P. O. Box 210, Jacksonville 1, Fla.

***Oct. 28-Nov. 1—Miami, Fla.**
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Convention (McAllister Hotel). Exec. Sec., Edward J. Kelly, 1424 K St., NW., Washington 5, D. C.

***Nov. 18-20—Lafayette, Ind.**
INDUSTRIAL RECREATION CONFERENCE. Annual Convention (Purdue University). Information from Industrial Recreation Conference, Technical Extension Division, Purdue University, Lafayette, Ind.

***Nov. 26-29—Dallas, Texas**
NATIONAL TAX ASSOCIATION. Annual Convention (Hotel Adolphus). Sec., Ronald B. Welch, Box 1799, Sacramento, Calif.

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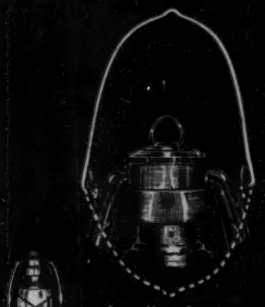

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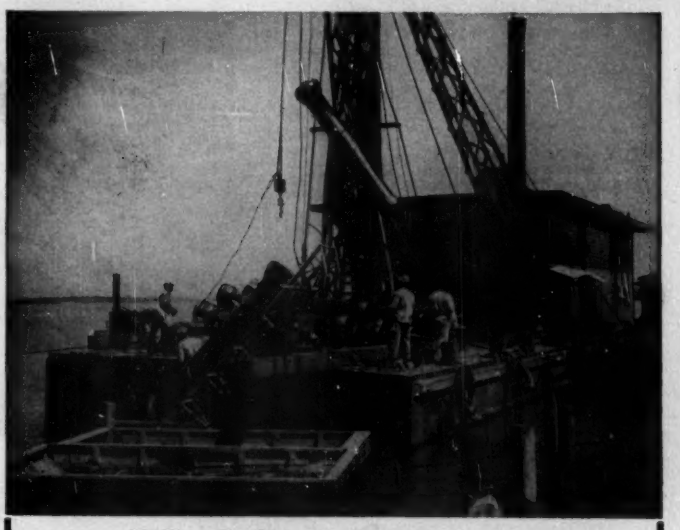

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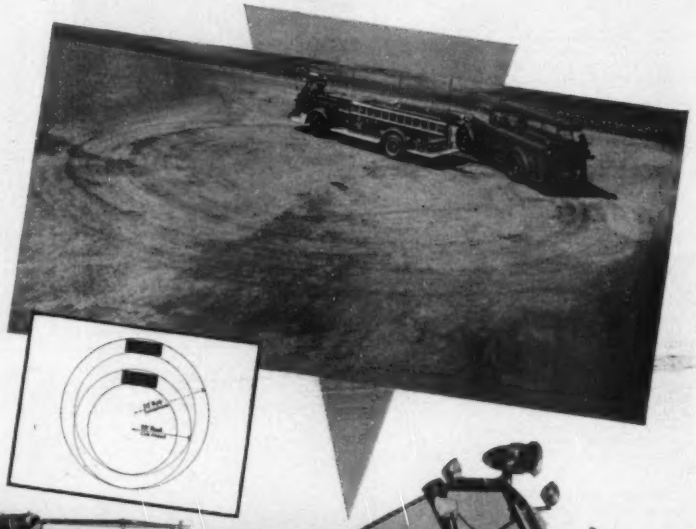

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The Elements of Refuse Collection and Disposal

(*Continued from page* 105)

	April	*May*	*June*
Burning rate (tons per hour)	2.15	2.34	2.66
Residue (per cent)	9	8	8
Cost (per ton)	$2.13	$1.69	$1.39
Collection (tons)	378	418	467
Collection (cost per ton)	$6.91	$6.48	$5.72

Efficiency Measurements

However, incinerator efficiencies are measured better in terms of man-hours per ton rather than cost. This cancels out the vagaries of different salary scales and encourages alert, aggressive operation, rather than low, sweatshop wage scales. Detroit made such a determination when measuring the usefulness of its new 175-ton per 24-hour furnaces as compared with the old type of hand-stoked Decarie basket-type units.[8] The Monohearth furnaces require two firemen for operation as compared with three men on the old Decarie units, thus cutting the labor requirements for firemen by one-third. Personnel in the rest of the plant remained the same.

But efficiencies should not be measured either by cost or man-hours alone. Some consideration should be given to the character of the residue that the incinerator produces. Any operator can roll up a thoroughly unfair picture of his plant operation by the simple procedure of not burning the refuse thoroughly. Robert Stellwagen, Detroit consulting engineer when testing that city's new incinerator, obtained a figure of 1½% for unconsumed material. This figure compared with 0.5% to 5.0% in the ash from standard boilers used for power production. During this same period, the total ash residue ranged between 14% and 16.5%.

"Unconsumed residue" means the amount of the sample that can be further reduced when subjected to a temperature of 1,600° F. for four hours. Many times the test is somewhat difficult to make, because of the character of the residue itself, containing bed springs, large tin cans, and other material that makes the taking of a fair and representative sample difficult, but the method does offer the only really fair system of telling how well an incinerator is working.

Incinerator operators try to obtain some insight into the operation of their plant by judging the amount of material that is hauled away as residue. Plant operations would be considerably enhanced if this residue might be weighed to get an accurate picture of the work. However, this is hard to do because the residue is always quenched in water to keep it from causing a smoke nuisance, and this water would add enough to the weight to make an accurate figure difficult to obtain.

Thus far, the discussion has covered incinerators with furnaces that follow a somewhat similar pattern. In general, they are charged from the top. When the burning has advanced to a sufficient point the grates are lowered and the residue drops to the ash hopper. Some of these incinerators are round and some are rectangular. Some have movable stoking arms in them to encourage burning and some do not. But in all cases, the basic pattern is the same.

Continuous Feed-and-Discharge Plants

There are a few incinerators, however, that depart from this fundamental pattern, and burn the refuse on a continuous-feed principle. One of these is in Englewood, N. J., and it follows what is known as the Greenawalt design.[9] Englewood makes a combined collection for incineration of garbage, other refuse, and ashes. The plant has a pit and crane to receive the refuse.

Traveling Grate

The crane deposits the refuse on a continuous feeder, which in turn feeds it into a coarse hammermill, which shreds it to pieces about 8 inches long or finer. It is then delivered to a vibrating screen that separates it into "coarse" by using a screen with 1½-inch openings; "middlings" using a screen with ¼-inch openings, and "fines" consisting of all material passing the ¼-inch openings.

The "fines" contain the fine dust from the ashes and a small amount of fine organic matter that makes a very acceptable fertilizer. This material does not pass through the incinerator. The "middlings" contain considerable unburned coal from the ashes, and as they are highly combustible are deposited on the grate first. The coarse material is placed on top of this layer of middlings material about one-fourth the way along the burning grate. A coal stoker applies supplemental heat, but this rarely has to be used except to start the burning. The thoroughness of the burning, of course, can be controlled by the speed of the grates.

The actual operating is done by two men, one on the crane and the other tending the furnace.

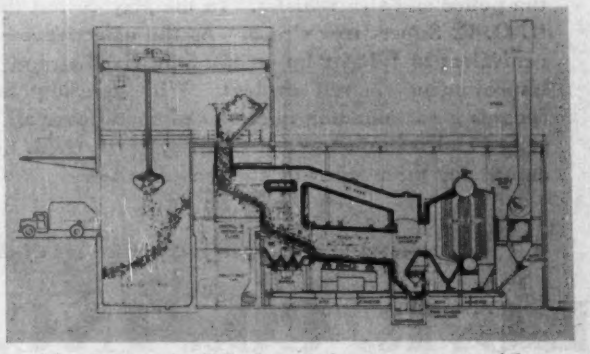
Rotary-Kiln Furnaces

Another incinerator of somewhat similar design is the one used at Atlanta, Ga.[10] This also uses a pit and crane to feed the refuse. The refuse first goes through a drying hearth that makes it easier to burn, and then is delivered to a pair of revolving tubes, lined with fire brick, and set on a slight slope. The refuse burns as it rolls around in the rotating tubes and is finally discharged as a residue at the end. The speed of rotation is governed to an extent by the rate that the refuse burns. The Atlanta incinerator is rated at 333 tons per 24 hours.

This incinerator has some interesting revenue features that help make it less of a financial burden to the city. The plant, for example, generates steam that it sells to the local power utility at a rate that is profitable. This makes it possible to pay for the capitalized cost of the plant. It also makes a profitable revenue out of the sale of scrap-metal that is screened out of the residue. Atlanta is now enlarging its incinerator to double its present capacity, and is using the same design.

A third kind of continuous-feed incinerator is typified by the units now

(*Continued on page* 165)



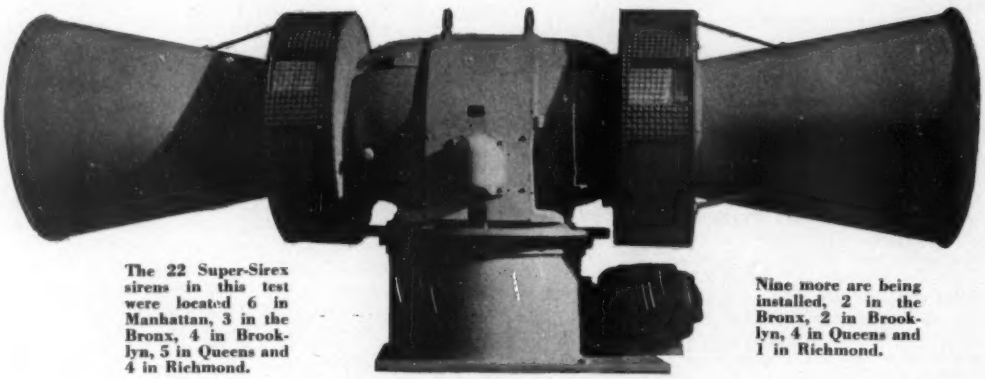
Atlanta's interesting Volund-type incinerator uses rotary kilns.

Wail of a Racket Made By Sirens in 2d Test

By DAVID QUIRK

New York City's second air raid sirens test since World War II was held—and heard this time—at noon yesterday. The first test, last Jan. 27, was somewhat of a flop, but yesterday's was labeled "a terrific improvement" by Mayor Impellitteri and "quite a success" by Arthur M. Wallander, city director of Civil Defense.

Wallander said that 526 [illegible] way in Times Square at the first



The 22 Super-Sirex sirens in this test were located 6 in Manhattan, 3 in the Bronx, 4 in Brooklyn, 5 in Queens and 4 in Richmond.

Nine more are being installed, 2 in the Bronx, 2 in Brooklyn, 4 in Queens and 1 in Richmond.

In the January test there were only 2 hp and 5 hp sirens and the mobile sirens on the police and fire vehicles. In the May 26 test there were 22 revolving 40-hp H. O. R. Super-Sirex sirens. As the effectiveness of 22 Super-Sirex sirens is equivalent to 1,364 2-hp or 352 5-hp fixed sirens, the reason for the "terrific improvement" is self evident. With carefully timed revolution Super-Sirex spreads a commanding umbrella of sound over all points of the compass. Designed and manufactured exclusively by H. O. R. Co., Inc., Super-Sirex is guaranteed for three years by the manufacturer.

Write for full particulars of this test

H. O. R. CO., INC. **40 BROADWAY STATEN ISLAND 10, N. Y.**

Elements of Refuse Collection and Disposal

(*Continued from page* 163)

under construction in the City of New York.[11] The most recent of these is the Betts Avenue incinerator, designed to handle 800 tons per day. It uses a system of chain grates to allow continuous feed, continuous burning, and continuous discharge of the residue. It serves 500,000 people, each expected to contribute 2.7 pounds of refuse per day, and will receive refuse by 250 trucks, each carrying 3 tons, 70% of which will arrive at the plants between 9 a.m. and 3 p.m.

New York City designers expect the refuse to be between 60% and 65% garbage, to have a 55% moisture content and a calorific value of 4,000 BTU's per pound, and to weigh 400 pounds per cubic yard.

Pit and Crane Used

Refuse, when it enters the plant, is weighed on a Fairbanks platform scale that records the weight with an IBM printing machine. This scale-and-weighing combination can handle 70 trucks per hour. The trucks discharge their loads to a receiving pit 20 feet wide, 164 feet long, and 20 feet deep. The pit is designed so that the plant can run 16 hours without additional deliveries. Truck time in the plant is estimated at five minutes.

Two high-speed P & H cranes with long-toothed Blaw-Knox buckets take the refuse from the pit and deliver it to the furnaces. The cranes lift 75 feet, travel 40 feet, and carry 5 cubic yards. The crane speed is 440 feet per minute. Trolley-travel time is 300 feet per minute. The bridge travel is 250 feet per minute. Each crane can handle 600 tons per hour.

The cranes deliver the refuse either to a shredder or to the refuse chute directly. The refuse shredders are experimental, and consist of four motor-driven Jeffrey swing hammers with a capacity of 30 tons per hour each. A picker on the belt to the hammermill will remove metals other than tin cans. The shredders can be by-passed and the refuse delivered directly to the charging chute, if that seems advantageous. In either case, the refuse, shredded or unshredded, goes though the charging chute to an inclined drying hearth. The charging chute is kept full at all times.

Furnace Design

The incinerator has four furnaces, each with a capacity of 200 tons per day. The furnaces have a drying-grate section, a burning-grate section, and a combustion chamber. The drying-grate and burning-grate sections have built-up walls made of heavy-duty General Refractory Company fire brick. The walls are sectionally supported and air-cooled. The furnaces are designed to provide 9 cubic feet of space per ton of 24-hour capacity. The combustion chamber provides 27 cubic feet of space per ton of 24-hour capacity. The furnace temperature is expected to be maintained at 2,400° F. The combustion chamber diverts 40% of the gases to a preheater. Each furnace has two McClave Company traveling grates. In detail, the grates have these characteristics:

Drying grate—64 sq. ft. area
Burning grate—8 ft. x 16 ft.
Each has variable speed of 10-150 ft. per hour
Drying grate receives 260 lbs. per sq. ft. per hour
Burning grate receives 95 lbs. per sq. ft. per hour

Each furnace is aided by the two oil burners in case supplemental fuel is needed to maintain combustion.

Fly-Ash Control

The expansion chambers for the furnaces are outside the building to catch the fly ash. The velocity of the gases through the combustion chamber is 15 feet per second; through the flues is 25 feet per second, and through the expansion chamber is 5 feet per second. The incinerator has two chimneys, each 10 feet in diameter and 250 feet high, lined with self-supporting fire brick, and reinforced with a steel corset. The velocity of the chimney is 40 feet per second. The temperature is 900° F.

The furnaces have a preheater consisting of 156 alloyed tubes, 10 feet long, 4½ inches in diameter. Hot gases pass through the tubes. Air to be warmed is moved in a double pass outside.

Primary-combustion air, supplied by an American Blower forced-draft fan, goes through the bottom of the traveling grate. The grate is divided in eight sections, so that an increased amount can be supplied to any portion of the grate that appears to need it. The furnaces also receive secondary air through jets much like overfire jets used in boiler operation. There are three rows of these air jets, two have seven jets, and one has five.

The traveling grates deliver residue to a quenching pit filled with water, and Jeffrey conveyors remove the residue to waiting trucks. The designers expect 30 tons of residue daily from the 800 tons of refuse delivered to it.

And so from this discussion we begin to see how these improvements perform their task in municipal sanitation. We have some guiding factors which are useful for selecting the design of the incinerators, some data on their expected operation, and some analyses of the various types. Properly operated, an incinerator is a municipality's most effective means of handling refuse-sanitation problems. Properly designed, its cost need not be excessive.

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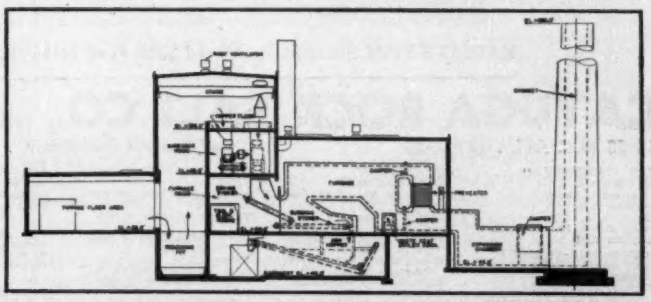


The intricately designed Betts Avenue incinerator, used in the refuse-disposal operations in the City of New York, makes extensive use of traveling grates.

...3 strikes against you already!

—*but you're NOT necessarily "OUT"!*

Maybe next winter seems far away. But don't let the calendar fool you! When it comes to delivery of Rock Salt for snow and ice control, you have three strikes against you already.

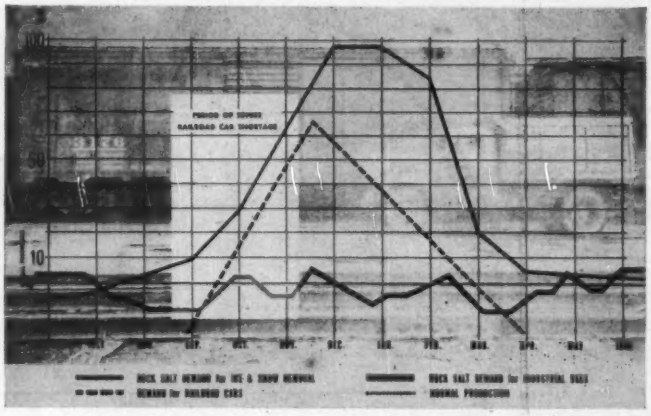
Here's what we mean:

Railroads	**First priority for Rock Salt in winter must go to the railroads —to keep switches, safety signals and other controls open so freight and passenger train can move.**
Industry	**Second largest Rock Salt consumer is American industry— particularly the chemical industry which uses Rock Salt to produce basic chemicals required by industries.**
Government	**Always a major Rock Salt consumer, this customer is getting bigger every day, as a result of the speed-up in the Nation's defense program.**

Now look at the chart. Notice the terrific Rock Salt demand between September and March. Notice the shortage of freight cars during November, December and January—the months you'll be wanting your Rock Salt in a hurry for highway snow and ice removal. During these months, although we'd like to fill your order promptly, 6 weeks or 1½ months will be our minimum delivery time!

"A smart man buys before snow flies," . . . 75% of next winter's Rock Salt should be in your bins before October first.

Send in your order now, while we can make deliveries promptly.



Did last February's sleet and snow (plus the railroad strike) find you without Rock Salt? If it did, that's another good reason for ordering your next winter's supply today!

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New York City's Proposed Rezoning

(*Continued from page* 100)

often be mapped 200 feet deep, to provide room for parking), and also other parts of central Manhattan. A special district (CB-6), with no restrictions on signs, is designed for Times Square.

● Commercial-Amusement (CC) Districts would include Coney Island and other amusement parks.

● Three Heavy Commercial (CD) Districts would be mapped in small clusters all over the city, to provide appropriate areas for filling stations, automotive repair establishments, building-material yards, monument works, small machine shops, and other necessary local services which involve a substantial amount of nuisance. Driving ranges, swimming pools, and other open amusements not located in an amusement park would also be permitted in CD Districts.

● Finally, two Commercial-Manufacturing (CM) Districts are proposed as interim zoning, pending redevelopment, for a number of areas in the city where residence, commerce, and manufacturing are so mixed up that no reasonable decision can be made at the present time as to the best future use of the area. Many of these are blighted areas subject to redevelopment; others are under elevated railroads. When and if all these areas are eventually redeveloped, it is proposed that the CM Districts should be dropped from the text of the zoning law.

Manufacturing Districts

Four types of manufacturing districts are proposed:

● Two Light Manufacturing (MA) Districts with a very high bulk (floor-area ratios of 10 and 15) would include the garment center and a few other light manufacturing-loft areas in Manhattan.

● Three General Manufacturing (MB) Districts are proposed for general manufacturing and loft areas over the city.

● Three Heavy Industrial (MC) Districts are proposed for general industrial areas, especially along railroad freight lines and the waterfront.

● Finally, the Noxious Industrial (MD) District would include dangerous and offensive industrial establishments, and are limited to a few out-of-the way areas of the city. New residential construction would be excluded from the last three districts, both to prevent residences in undesirable locations and to preserve the city's remaining good industrial land for proper use.

While large-scale projects would in general be subject to the same regulations as smaller private development, a few special provisions are proposed for problems arising only in large projects.

● First, roughly 10-15% of the area of such a project is land formerly in existing or mapped streets; and, if this area were all added to the net site area, the floor-area ratio regulations would permit a substantial increase in density. A special control is, therefore, proposed which in effect provides that half of the land taken from streets could be used for building, and the other half should be reserved as additional open space.

● Second, a start has been made on one of the great unsolved problems of American zoning — the development of special controls over the spacing of buildings within large-scale projects.

● Third, the Planning Commission would be authorized to permit additional uses within a project, subject to appropriate safeguards, without changing the zoning maps.

● Finally, for all residential projects involving at least 20 acres or at least 500 dwelling units, the Planning Commission would make a check on the availability of schools and other community facilities.

Off-Street Parking

In order to help relieve traffic congestion, the proposals place great emphasis on providing space off the public streets for parking cars and for loading and unloading trucks. Accessory parking space (open or enclosed) would be permitted generally, and would be required for new construction, so far as practicable; in general, more spaces would be required in the outer areas than in central Manhattan, partly because more persons own and use cars in the outer areas and partly because space is easier to obtain there. The requirements for new residences would range from one space for each dwelling unit in the outer areas to one space for each five dwelling units in central Manhattan; and spaces would also be required for the larger new stores, factories, theaters, hospitals, and other establishments attracting a lot of patrons or employees coming by car. However, all such parking spaces would be subject to design regulations—covering the width of access driveways, their distance from street intersections, required surfacing and screening to protect adjacent residences, and so on. Commercial garages and parking lots would be permitted as of right, subject to the same design rules, in CB and subsequent districts.

Off-street loading berths would be required for factories, warehouses, department stores, hospitals, and hotels—as in the existing resolution—and also for offices and for other retail stores. However, more berths would be required for factories than for stores, and more for stores than for offices, hotels, and hospitals; proportionately less berths would be required for the larger buildings; and the requirements for the central areas would be less strict than those in the outer areas. In addition, it is proposed that, to a lesser degree, berths should be required to be installed in the larger existing buildings, provided that sufficient frontage along the side streets is available for such berths.

Special Regulations

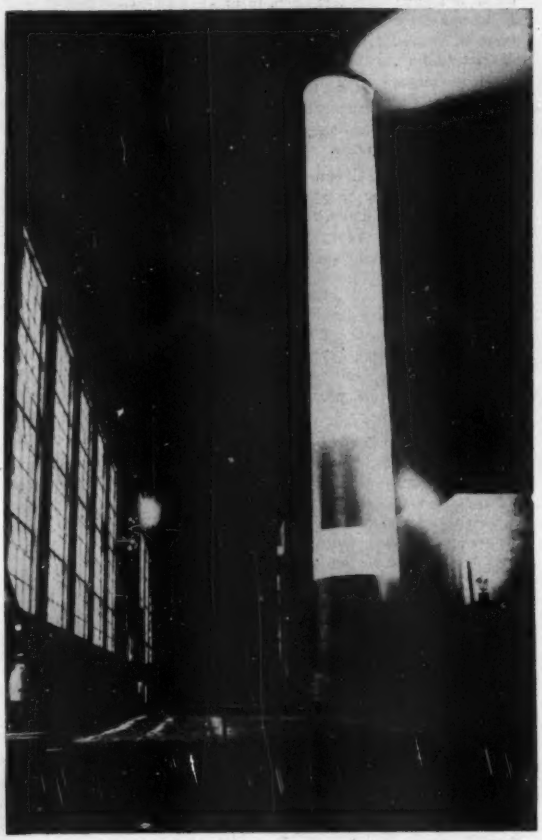
In addition to the district regulations, the proposals include a number of regulations applying to other special areas with boundaries different from the district boundaries. For example, in order to break the sharp transition along district boundaries and to give additional protection to residences near such boundaries, objectionable factories would not be permitted in an Industrial District within 100 feet of a Residence District; and business entrances, show windows, and signs are similarly restricted along the edge of all non-residential districts without exception. Other special regulations would apply in the vicinity of certain specified uses. The height of buildings would be restricted for three miles around major airports, in accordance with a new formula designed to permit the maximum height consistent with the Civil Aeronautics Administration's safety standards for airport approaches; and garages and filling stations would be restricted in the vicinity of schools, parks, and playgrounds.

Curb on Spot Zoning

In general, the administrative provisions in the proposed amended resolution follow the present system in effect in New York. However, more notice would be given to property owners affected by zoning changes; and it is proposed that small "spot zoning" changes in the zoning maps should be subject to special restrictions, in order to protect the Planning Commission and the Board of Estimate from constant pressure to grant special favors to particular pieces of property. Moreover, since the use regulations are permissive throughout, a special and elaborately restricted procedure would be provided to permit, in the appropriate district, additional uses not specifically mentioned in the present use lists.

1,650,000 pounds of filter cake per day

handled at new Los Angeles Plant



The new Hyperion Plant in Los Angeles is one of the largest and most modern sewage treatment plants in the United States. It covers more than 75 acres and has facilities for disposing of liquid wastes from an equivalent population of three million.

To dry the activated digested sludge there are installed at this plant four C-E Raymond Flash Drying Units each designed to dry or incinerate over 200 tons of filter cake per day, the equivalent of an evaporation rate of 22,500 pounds per hour. These are the *largest units* in use on sewage sludge *anywhere*. The plant is designed so that the sludge can be dried and marketed as fertilizer, or incinerated to a sterile ash.

This new plant is typical of C-E Raymond System installations, now in service in virtually all parts of the country, meeting the varying requirements of both large and small communities. They are flexible in layout, highly efficient and thoroughly reliable; they provide for maximum utilization of waste heat.

The services of C-E specialists are available to assist you in finding the best solution to *your* sludge disposal problem. Get in touch with the office nearest to you for prompt attention.

Industrial sludges a problem?

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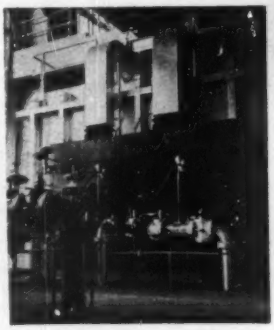

Representative list of C-E Raymond installations since 1945

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ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED EQUIPMENT

Los Angeles Aims at Perfection

(*Continued from page 81*)

permits the operation of internal-combustion engines at much higher and more efficient temperatures than are commonly used, and, in this case, produce steam as a by-product. The engines operate at a temperature of 240° F.

Five of these engines are direct-connected to 4,800-volt, 1,190-kw a.c. generators, and four through step-up gears to centrifugal blowers of 40,000-cfm capacity each.

The plant has an unusual arrangement for storage of digester gas. Two gas holders are supplied. One is a Chicago Bridge and Iron Hortonsphere for gas under relatively high pressure. The other is a General American Wiggins gas holder for low pressure. This is a cylindrical tank with an interesting flexible gas-tight seal made of woven asbestos and glass, covered on both sides by synthetic rubber. It has a weight-controlled non-tilting floating cover.

Waste-Gas Burner With High Safety Factor

In case the power plant cannot use all the generated gas, the plant is equipped with what may be the largest waste-gas burner installation in any sewage plant in the country. This is completely equipped with Vapor Recovery Company flame traps and burners. It is lined with fire brick and is set far enough away from the rest of the plant to prevent difficulties. All digesters are completely equipped with flame traps so that the gas can be handled without danger.

The design of the plant encourages visits from the public. The inside walls are faced to a height of 8 to 12 feet with a glazed tile, which gives a clean appearance and will also reduce the need for periodic painting and maintenance. The plant has reception rooms located so that visitors can see key operating features without having to journey through all the plant equipment.

Sewage was first turned into the plant on May 15, 1950, at which time only a portion of the flow could be given primary treatment. As additional units of the plant became available, increased treatment was provided until by September 1950, the entire flow of sewage was being given primary treatment. On March 19, 1951, the final, or activated-sludge, portion of the plant was placed in operation.

Even after such a short period of operation the formerly polluted beaches are cleaner, and when the tuning-up and adjusting of the complicated processes is completed, the great plant will achieve the purpose for which it is intended, namely, the permanent elimination of pollution from Santa Monica Bay.

The plant was designed under the general direction of Lloyd Aldrich, City Engineer, with Metcalf and Eddy, of Boston, Mass., as consultants. Merrill Butler was in direct charge of design. The writer was senior treatment-plant design engineer and is now chief engineer in charge of plant operation. F. M. Darnell was the senior administrative engineer.

Summer Theatre, Civic and Economic Asset

(*Continued from page 94*)

June. The Hyannis operation will begin July 2. Inasmuch as Commander Richard Aldrich has been called back to Washington by Uncle Sam, the projects will be managed for him by his lawyer, David Marshall Holtzmann of New York. Mr. Aldrich (husband of Gertrude Lawrence) is the successful manager of two standard-type summer theatres on Cape Cod—the Cape Playhouse, at Dennis, now in its 25th season; and the Falmouth Playhouse, three years old. All four theatres will have resident companies and visiting stars—making them attractive to visitors and important assets to the communities they serve.

The Lambertville (N. J.) Music Circus [says Publicity Director Max Eisen] has put the town on the map nationally. Lambertville was a little-known community before St. John Terrell put his Music Circus tent there. The Music Circus brings an average of 7,000 people to Lambertville weekly for a period of 16 weeks. For some weeks as many as 10,000 people head for the town. This spurs business in the local restaurants and bars and also in eating places within a radius of six miles. The 500 or 600 cars that head for the Music Circus nightly bring much business to the gasoline stations in the area. Since the coming of the Music Circus a Chamber of Commerce has been formed in the town, which is yet feeling its way. The hotel business has been on the increase, and also many private homes billet the permanent company. The Music Circus and the resident company do much of their purchasing and make use of the services in town.

Both culturally and civically, the Music Circus is an asset to Lambertville. It has sparked the city and people of Lambertville to want to improve their town and make it a community or resort center where people would desire to come and stay awhile.

The photograph on page 93 of the North Shore Music Theatre, at Highland Park, Ill., is typical of these theatres-in-the-round, under a big top.

In conclusion it should be pointed out that summer theatres of the types covered by this article not only attract out-of-town visitors to the community, but that families driving through often stop to see the show and stay in the town overnight. A high-grade local theatre also helps to lessen the tendency for creative young people to migrate from small communities to the big cities.

Instruments Produce Savings For the Small Power Plant

SUPERVISORY instruments and more complete automatic controls are being applied extensively to large and small power plants to improve fuel economy, keep over-all costs at a minimum, insure safe and reliable operation, and utilize operating personnel efficiently. This was explained by P. S. Dickey, Vice-President of the Bailey Meter Company, Cleveland, Ohio, at the recent Midwest Power Conference held in Chicago.

Smoke-density recorders are being utilized to guide the operators in elimination of the smoke nuisance, particularly where the plants are located in urban areas. On small stoker-fired units, installation of over-fire air jets with automatic control from the smoke density recorder, provides an effective and efficient means of eliminating the smoke nuisance.

Many installations require process steam and amounts varying from 30,000 to 200,000 pounds of steam per hour and upward. While each plant has its own particular set of conditions, the trend, however, is toward fewer boilers and units of higher capacity because over-all costs and cost of supervision are reduced with fewer, larger units.

While fuel savings alone will justify the installation of a complete supervisory instrument and control station for this type of unit, better performance and more reliable operation also will be achieved.

Centralized supervisory control stations are being used extensively in large and small power-generating stations. New and improved designs of supervisory and control equipment are being introduced to improve operator efficiency and reduce operating errors.

Coming soon

. . . the West Coast's first plant for the production of Coal-Tar Enamels

● At Fontana, California, Koppers is building a new, modern plant for the production of Bitumastic® Enamels, the Coal-Tar Base Coatings which have been famous for nearly a century for protecting underground and underwater metal surfaces from corrosion. This plant, which will also produce Koppers Roofing Pitch, will be the first such plant to be located west of the Rocky Mountains. From it, Koppers will be able to provide improved service to West Coast users of Bitumastic Enamels.

Bitumastic Enamels are the tough coatings that are used to protect buried oil and gas pipe lines against severe corrosive elements. Large-diameter steel water pipe lines also are protected, both inside and out, by Bitumastic Enamel. On the inside of the pipe, this enamel is applied in a smooth lining that keeps flow capacity high and reduces pumping costs.

Processed from a base of Coal-Tar Pitch, Bitumastic Enamels are impervious to moisture and are chemically resistant to soil elements. They make a tight bond with pipe and other metal surfaces, do not disintegrate with age, and maintain continuously high electrical resistance.

For information on delivery of Bitumastic Enamels . . . on the West Coast or elsewhere in the United States . . . we invite you to get in touch with us.

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Municipal Purchasing News

Information for officials interested in equipment and services for the construction, operation, and maintenance of municipal utilities

Water and Gas Mains—First Line of Civil Defense

Broken water mains can be repaired in 5 to 15 minutes with this Skinner seal split coupling clamp.

In war, gas and water mains are traditional targets of enemy bombers. Broken gas mains feed the flames. Broken water mains prevent or seriously impair fighting the fire. Quick, easy, and lasting repair of these essential systems is therefore a first line of defense.

Broken mains can be repaired in 5 to 15 minutes with the Skinner seal split coupling clamp. This clamp consists of two malleable iron intermeshing compression rings, a monel-metal seal band, heavy gasket, break-covering brass band, and electro plated, high tensile steel bolts. As the large intermeshing compression rings are drawn together, the gasket is uniformly compressed. Gasket is completely sealed at the top by monel metal seal band and at the sides by a hard vulcanized tip. The pressure is sealed in and air, moisture, and gasket deteriorating soil conditions are sealed out. The clamp is tested to 800 pounds line pressure.

Bell and spigot joints leak badly because of concussions caused by bombing. This damage may be instantly repaired by use of the Skinner seal bell joint clamp. The compression and anchor rings are drawn together by massive cadmium plated bolts, forcing the soft rubber gasket into every crevice of the joint and shutting off the leak at its source. The gasket is completely sealed at the face by the monel metal seal band and at the spigot by a hard vulcanized gasket tip acting as a plug.

Descriptive literature is available from the M. B. Skinner Co., South Bend 21, Ind.

A.G.C.A. Protests Order Restricting Construction

The order restricting construction will harm rather than help the industry, H. E. Foreman, managing director of The Associated General Contractors of America, Inc., declared recently.

National Production Authority Order M-4, he pointed out, will deter the defense program and harm essential civilian activity unless the order is implemented immediately with administrative machinery to process applications.

The A. G. C. A. is located in the Muncy Bldg., Washington 4, D. C. It represents more than 5,800 of the nation's leading construction firms.

Meili-Blumberg Reports New Sweeper Designed For Ford Tractor

Municipalities, counties, contractors, highway departments, and airports will find many applications for the new Meili-Blumberg sweeper, specially designed for the Ford tractor.

The broom may be attached or removed within a half hour; all shafts are heavy duty and turn on ball bearings; finger-tip power hydraulic control raises the broom 8 inches; all moving parts are fully protected for the safety of the operator; the broom tilts to adjust itself to surface, and a full-length dust hood protects the operator.

Efficient sweeping at all tractor travel speeds is provided by the broom which is driven by rear power take-off at fixed ratio to engine speed. It sweeps a 5-foot swath at a 30 degree angle, depositing debris outside of tractor wheels.

Full information and literature may be secured from the Meili-Blumberg Corp., 1635 Wisconsin Street, New Holstein, Wis.

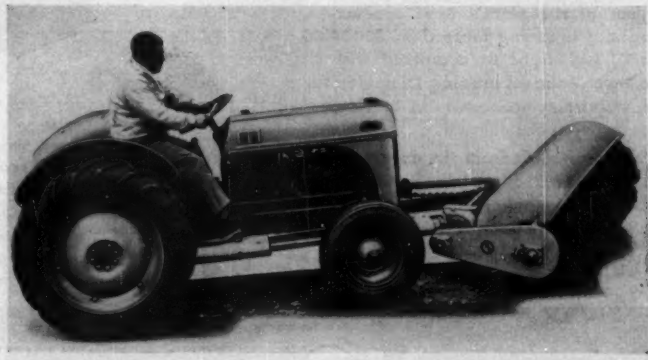
Cut-in Valve and Sleeve Produces Leakproof Joints

Economical and fast installation are among the features of this new cut-in valve and sleeve.

Permanently tight, flexible, and leakproof joints are provided by the new Smith mechanical cut-in valve and sleeve because the wedge shaped gaskets are compressed between the pipe and the equipment, a product of The A. P. Smith Mfg. Co., East Orange, N. J.

The manufacturer states that this device is the modern answer to the problem of installing gate valves in existing piping which can be relieved of pressure. All that is needed for installation is a ratchet and open end wrench, three rubber gaskets, three cast iron follower rings, and a handful of bolts and nuts.

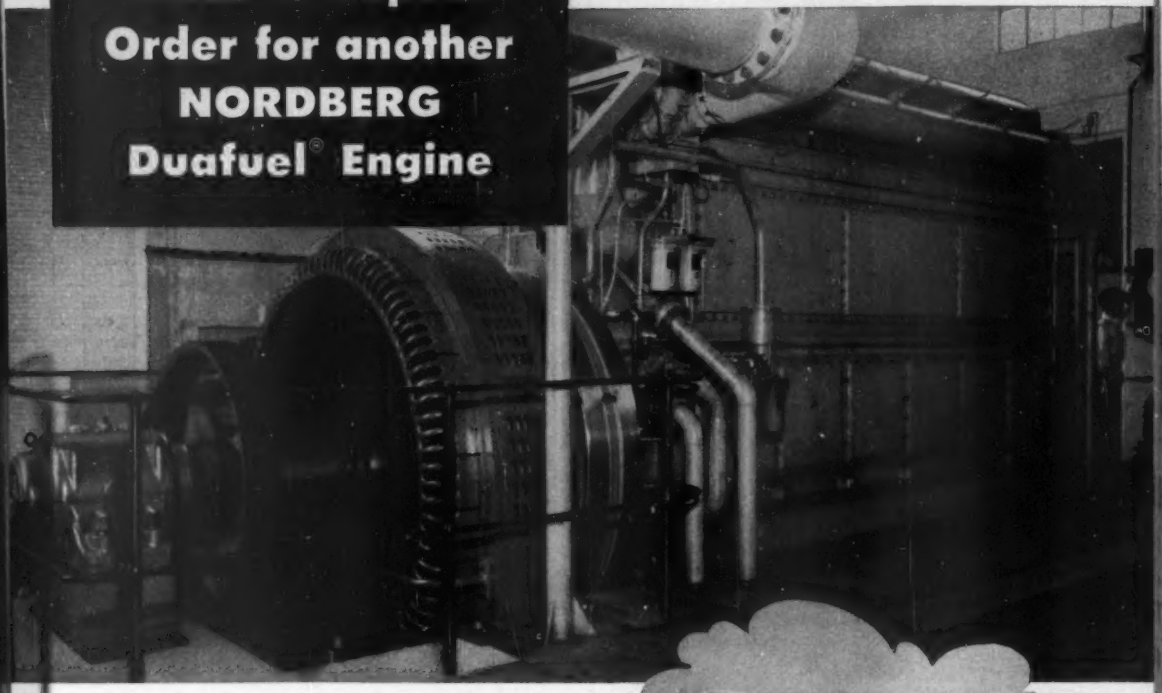
Among the advantages of the cut-in valve and sleeve are its economy and speed in installation, the simplicity of the molded rubber gaskets which fit into machined stuffing box type joints, and its permanence.



The fingertip power hydraulic control of this new sweeper raises the broom 8 inches.

OUTSTANDING PERFORMANCE leads to Repeat Order for another NORDBERG Duafuel® Engine

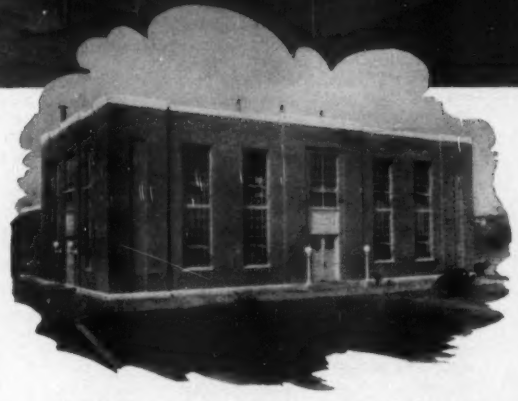
NORDBERG unit at Culpeper, Virginia saves over $9000.00 a year in fuel costs!



IN 1934, the town of Culpeper, Virginia, switched from public utility power to its own Diesel powered generating plant. As the load grew, additional generating capacity was added, the latest addition being the 1220 hp Nordberg four-cycle Supercharged Duafuel engine which was placed in service in 1948. This oil and gas burning Duafuel unit is now producing power at the lowest cost in the 16-year history of this municipal plant. Generating more than 63 percent of the plant's total production, the 1220 hp Nordberg is saving more than $9000.00 a year on the cost of fuel alone as compared with the average performance of the oil burning Diesels in the plant. In addition, important economies in lubricating oil and maintenance have been effected.

You can benefit from the experience of municipalities like Culpeper . . . by switching to NORDBERG power. Sizes for every application, from 10 to 9600 hp. Write for details, outlining your power requirements.

NORDBERG MFG. CO., Milwaukee 7, Wis.



The Culpeper municipal plant has become a major civic asset, with its success based on sound engineering and sound management. It is characteristic that this plant should now feature a thoroughly modern generating unit which utilizes the most economical fuel available.

It is highly significant that Culpeper has now ordered another Nordberg Duafuel Engine as a direct result of their previous experience with this type of Nordberg Duafuel power.

P231

BUSCH-SULZER A DIVISION OF NORDBERG

NORDBERG

DIESEL ENGINES

Richard V. Ford (at right) presenting testimonial bowl to Edgar J. Buttenheim at the annual meeting of the Water and Sewage Works Manufacturers Association. William J. Orchard is pictured at the left.

W.S.W.M.A. Holds Annual Meeting

How to do a better marketing and selling job was the subject of the principal address at the May 1951 annual meeting of the Water and Sewage Works Manufacturers Association held in Miami, Fla.

The speaker was Frank W. Lovejoy, marketing and sales executive of Socony-Vacuum Oil Co., Inc., who is a past president of the New York Sales Executives Club.

Mr. Lovejoy listed five rules that are, in his opinion, the basis of all successful selling: *don't talk too much, never assume an argumentative manner, inquire first and talk afterward, be sure that the buyer understands that you understand his objections, and stick to one key issue.*

R. F. Orth, manager of the Transite Pipe Dept., Johns-Manville, introduced Mr. Lovejoy and presided at the election of new officers and the board of governors. Those assuming office January 1, 1952, will be: Everett M. Jones (Simplex Valve & Meter Co.) president; Carl N. Brown (United States Pipe & Foundry Co.) vice-president; Hubert F. O'Brien (The A. P. Smith Mfg. Co.) treasurer; John G. Stewart (W.S.W.M.A., New York, N. Y.) manager, and Dorothy E. Dimmers (W.S.W.M.A., New York, N. Y.) secretary.

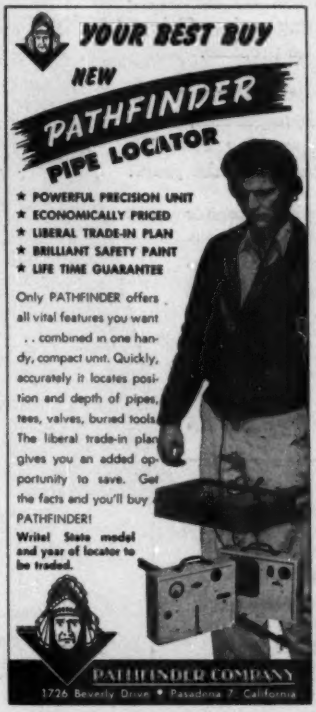
To the board of governors, made up of 15 member companies, the following five firms were elected for a term starting January 1, 1952: The Dorr Co.; Pittsburgh-Des Moines Steel Co.; THE AMERICAN CITY MAGAZINE; Lock Joint Pipe Co., and Roberts Filter Mfg. Co.

Another feature of the meeting was the presentation of a testimonial trophy to Edgar J. Buttenheim, publisher of THE AMERICAN CITY MAGAZINE, as a memento of 23 years of service as treasurer of the Water and Sewage Works Manufacturers Association.

J. Herman Smith Dies

J. Herman Smith, associated with the Hersey Mfg. Co., E. and 2nd Sts., South Boston, Mass., as sales engineer from 1915 until his retirement in 1947, died May 13th of a heart attack at Newport, R. I. Burial was at Middleton, R. I.

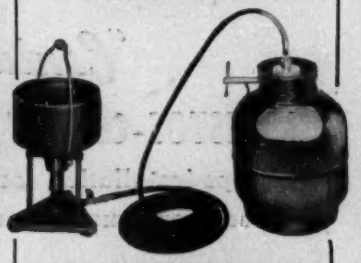
Mr. Smith is survived by his widow; a son, Ellsworth Smith, Commander in the U. S. Navy, and a brother.


YOUR BEST BUY
NEW
PATHFINDER
PIPE LOCATOR
★ POWERFUL PRECISION UNIT
★ ECONOMICALLY PRICED
★ LIBERAL TRADE-IN PLAN
★ BRILLIANT SAFETY PAINT
★ LIFE TIME GUARANTEE
Only PATHFINDER offers all vital features you want . . . combined in one handy, compact unit. Quickly, accurately it locates position and depth of pipes, tees, valves, buried tools. The liberal trade-in plan gives you an added opportunity to save. Get the facts and you'll buy PATHFINDER!
Write! State model and year of locator to be traded.
PATHFINDER COMPANY
1726 Beverly Drive • Pasadena 7, California

Insto-Gas

FLOOR TYPE MELTING

FURNACE



FOR WATER WORKS CONSTRUCTION

Now the famous Insto-Gas plumbers furnace is available in the handy floor-type style for greater convenience of operation in ditches, under buildings and hard to get at places.

The Insto-Gas floor-type furnace has all the Insto-Gas features — instant lighting, safety, portability and economy.

This furnace has a melting speed of 40 lbs. of lead in six minutes. It can be used for melting metal, asphalt, paraffin and compounds.

With a 50 ft. hose, the furnace can be moved right to the work without moving the cylinder. The flame control valve is located at the furnace.

INSTO-GAS TORCHES

Water Works maintenance departments also use Insto-Gas torches for melting out bell joints and soldering work.

Insto-Gas equipment is listed by both Underwriters Laboratories and Factory Mutuals Laboratories

Write for Complete Information or Use the Coupon

Please send information on Insto-Gas to:

NAME .....

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Insto-Gas Corporation - Detroit 7, Mich.

Extending a water main system?

"Century"®

ASBESTOS-CEMENT PRESSURE PIPE

keeps installation costs low....
gives permanent, trouble-free service!

In extending water mains, or when installing a new system, *installation costs* are often a major part of the original investment. But you can make important savings on installation costs—keep your original investment to a minimum—with "Century" Asbestos-Cement Pressure Pipe.

"Century" Pressure Pipe is moderate in price—you save right from the start! It's strong and durable . . . but light in weight and easy to handle . . . can be laid quickly—you make further savings on installation. Connection to existing mains, fittings, hydrants, and valves presents no problem.

Non-metallic "Century" Pipe cannot rust or corrode and since tuberculation is impossible, inside diameter, flow capacity and pumping costs are unaffected. Thus savings continue over the years!

Before you buy or specify any pipe for water mains, it will pay you to investigate the cost-saving advantages of "Century" Asbestos-Cement Pressure Pipe. Write us for complete information.

KEASBEY & MATTISON
COMPANY · AMBLER · PENNSYLVANIA

"Century" Pipe being laid as extension to serve new development. "Century" Simplex Couplings supplied with "Century" Pressure Pipe facilitate rapid laying of straight runs or curves up to 5° deflection per pipe length.

"Century" Pipe is made in two pressure classes: 100 and 150 pounds per square inch. Every section is hydrostatically tested to insure ample reserve to handle normal "water hammer."

K&M Asbestos Rope for yarning bell and spigot joints reduces the hazard of bacterial content following the laying of mains. Write for details.

Nature made Asbestos . . .
Keasbey & Mattison has made it serve mankind since 1873

Honolulu Police Dept. converts its patrol car into an emergency ambulance.

Converts Municipal Cars Into Emergency Ambulances

The increasing necessity to prepare for a major disaster is moving civil defense authorities to plan for the conversion of municipal equipment, taxis, panel delivery trucks, and station wagons into a corps of emergency ambulances.

According to the manufacturer, Tec Industries, 2018 W. North Ave., Chicago 47, Ill., such a corps can be quickly accomplished with Collapsi Cot, which was selected as standard equipment in the new Chrysler ambulance.

Collapsi Cot is constructed of aircraft tubing, weighs 23 pounds, and has an adjustable back rest feature that positions the patient to meet the ailment.

When not in use, the emergency stretcher collapses to a small package which can be stored in back of the spare tire without interfering with other articles in the luggage compartment, or it can be strapped to the ceiling or carried on the side wall without affecting the normal seating capacity.

Nordberg Distributor

Appointment of the Yaun Equipment Co., 2120 N Third St., Baton Rouge, La., as distributor for Nordberg 4FS diesel engines in the southern half of Louisiana is announced by the Nordberg Mfg. Co., Milwaukee 7, Wis.

The Yaun firm was established in 1921 by J. F. Yaun, who owned and manufactured a patented all-welded steel dragline bucket. J. Clifton Yaun now is president of the organization, and Huey F. Yaun, first vice-president. J. D. Ganey is secretary-treasurer and J. H. Loupe, sales manager.

The Nordberg 4FS diesel engines are built in one- and two-cylinder models with a 4½-inch bore and 5¼-inch stroke and range in power from 10 to 30-hp within an operating speed range of 1,200 to 1,800 rpm. These four-cycle, heavy-duty, vertical engines are designed for stationary or portable power applications and marine auxiliary uses. The Nordberg engines are offered as complete, self-contained, ready-to-operate electric generator sets, centrifugal-pump units and with clutch or stub shaft power takeoff for direct connection or belt drive.

Retires After 29 Years

Lewis I. Birdsall, technical service representative of the General Chemical Division, Allied Chemical & Dye Corp., 40 Rector St., New York 6, N. Y., retired from the firm on June 1st after 29 years of service.

Well known to water-works men throughout the country, Mr. Birdsall began his career with General Chemical at its Chicago office in 1922. He traveled widely ever since, helping filter plant operators with coagulation problems.

Recipient of the 1950 Fuller Award, Mr. Birdsall has been active in the American Water Works Association.

Bonds as Investments...

from the pension fund viewpoint

THE MARKETABILITY of a bond is of minor significance in pension, insurance or endowment fund investment, for in practice such funds seldom sell their holdings before maturity. Nor does tax exemption have any plus-value for a pension fund whose every investment is tax-exempt by law.

¶ The issues of lesser known corporations and municipalities, both taxable and tax-exempt, may well be investigated by the fund investor. Since excess marketability commands a price, it is possible that many such investors are paying a premium for bonds that can be equalled in security—and exceeded in yield—by less marketable issues.

¶ Halsey, Stuart & Co. Inc. makes available a wide volume and diversity of bonds for all investment needs. Send without obligation for our latest offering list.

❑ ❑ ❑

HALSEY, STUART & CO. INC.

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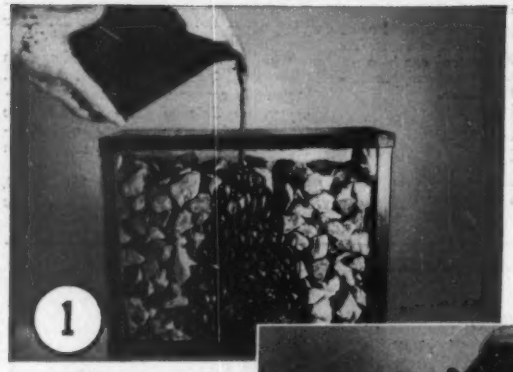
AND OTHER PRINCIPAL CITIES

Your 3 Basic Paving Problems

Solved BETTER by Bitumuls

Only BITUMULS can perform these three functions so efficiently and at such low cost. (There are other reasons, too, but these three come first.)



It PENETRATES—
uniformly and deeply — without heating — through closely interlocked stone, damp or dry. In macadam construction, this means STABILITY because BITUMULS tacky asphalt coatings leave the stone in frictional contact.

It COATS DAMP NATIVE MATERIALS—
Only BITUMULS mixes easily and uniformly with damp, dense materials. Nothing else so efficiently treats low-cost sands and native aggregates—and gives early pavement stability with year-'round high bearing value.

It SEALS—
with precision—the RIGHT amount at the RIGHT place. This ease of precise cold application gives unsurpassed uniform, non-skid surface treatments with maximum retention of cover stone.

Whatever your paving needs, they can be filled by a correct BITUMULS specification that has already proved effective many times elsewhere. Our service engineers, skilled in the needs of your area, are ready to help YOU. Wire, phone or write our office nearest you.

Ask for these FREE booklets —data, tables, specifications.

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Mobile, Ala. · E. Providence 14, R. I. · San Juan 23, Puerto Rico

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- Bitumuls Handbook . . . . . ☐
- Hydrapel—Admix for concrete . . . ☐
- Tennis Courts—Laykold & Grasstex . ☐
- Fibrecoat—roof and metal coating . ☐

Heil Sales Manager

Joseph F. Heil, president of The Heil Co., Dept. 4351, 3043 W. Montana St., Milwaukee 1, Wis., announces the appointment of John Barclay as general sales manager to succeed William E. Simons who left the firm. Mr. Barclay has served Heil as a sales representative and district manager at Seattle, Wash., and Hillside, N. J.

John Barclay

Succeeding Mr. Barclay is William Schumacher, Hillside sales representative. Robert Miller, district sales manager at Kansas City, Mo., has been made sales manager of the Road Machinery Division. He replaces Henry Giles, who has become an active member and general manager of J. S. Innes, Ltd., Heil road machinery distributors, at Toronto, Canada.

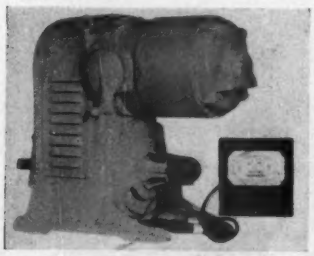
Ralph Nitz replaces Mr. Miller in Kansas City. He had been a sales representative at Dallas, Texas.

Variable Speed Electric Tachometer

An electric tachometer arrangement has been provided for motor applications that require continuous and accurate speed indication. U. S. Varidrive motors are available with Model R-1 tachometer and generator in ratings from ¼ to 50 hp and speeds from 2 to 10,000 rpm.

The sturdily built, permanently lubricated, ball-bearing type generator is coupled to the U. S. Varidrive and requires no other source of power. The tachometer indicator is entirely enclosed to prevent entrance of dust and other foreign particles, and can be mounted at distances up to 300 feet from the Varidrive without affecting accuracy. The indicator dial shows the operating speed as a per cent of the Varidrive maximum speed. Ten feet of two-conductor cable is supplied with each unit, making it possible to mount the tachometer in the most advantageous location.

Manufacturer is U. S. Electrical Motors, Inc., 200 E. Slauson Ave., Los Angeles 54, Calif.



Electric tachometer for motor applications.

"RCA 2-way radio has increased our operating efficiency so much I don't know how we ever got along without it."

This radio dispatcher can talk directly with any road foreman in Burlington County (827 sq. mi.).

...for our taxpayers with RCA 2-WAY RADIO"

—says County Road Supervisor Irvin R. Worthington, Burlington County, N. J.

"I know where my men are at all times. When a foreman radios for help, we dispatch a crew to the point of trouble in a matter of minutes. Quick action on the building or emergency repair of roads . . . reduction in 'dead mileage' in getting equipment to the job...saves money for the taxpayers."

Here is an efficient 2-way radio system yielding big savings to Burlington County in the maintenance of over 500 miles of roads—including 2500 bridges and culverts. Yet surprising as it seems, the entire job is handled by a simple, compact RCA Fleetfone System—using only one low-power headquarters station and 12 mobile units.

Conserve equipment, save time, save money with an RCA 2-way radio system. It will pay you to talk over your operations with RCA experts. Write: Dept. R-102, RCA Engineering Products, Camden, N. J. (*In Canada, write: RCA Victor Company Limited, Montreal*).

MAIL THE COUPON for the fact-packed brochure

RCA ENGINEERING PRODUCTS
Dept. R-102
Camden, N. J.

Please send me information on RCA 2-way Radio Systems.

Name_____

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RADIO CORPORATION of AMERICA

Why take a chance? You can rely on . . .

DON'T TRUST TO LUCK when you buy an applicator. You can depend on TIFA for it does carry the Underwriters' Listing Seal—to meet your most rigid specifications . . . to save you money in overall operation. For TIFA is backed by 10 years of experience in manufacturing fog-machines!

TO ELIMINATE FLIES, mosquitoes and other insects, the sturdy TIFA unit discharges insecticides in a clean, *dry* fog which spreads rapidly over and around all objects . . . permeates tiniest crevices . . . seeks out every hidden insect.

USE TIFA wherever your people congregate and insects annoy them. It's quick and effective . . . compact and portable . . . self-powered and one-man-operated.

For better health and better living, put TIFA to work in *your* community!

TIFA

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Carrying Underwriters' Listing Seal

DEATH-DEALING FOG FOR INSECTS

Write for illustrated folder on sensational TIFA — full details, official comments.

TODD SHIPYARDS CORPORATION

COMBUSTION EQUIPMENT DIVISION

81-16 45th Avenue, Elmhurst, Queens, N. Y.

Two-Way Communication For Fire Fighters

Firemen battling this stubborn blaze in the elevator penthouse of a 21-story building were aided by the use of the MSA Maskfone that permitted instant transmission of orders to ground level.

When fire broke out in the penthouse of the 21-story Western Area Headquarters of the Bell Telephone Company of Pennsylvania, Pittsburgh firemen used, for the first time, their new self-contained equipment that enables two-way voice communication between men wearing breathing apparatus and other men a distance away. This equipment is the MSA Maskfone, a development of Mine Safety Appliances Co., Pittsburgh 19, Pa.

Through an MSA Chemox oxygen-generating breathing apparatus equipped with speaking diaphragm and the Maskfone, Chief William Davis issued orders to aides at street level 21 floors below. The neoprene-covered cable for the two-way communications system was dropped from the roof to the street. This save trips of firemen up and down the 21 flights of stairs. Chief Davis pointed out that another advantage of the Maskfone is in the gas mask training of rookie firemen who may be apprehensive about wearing masks. The psychological effect of being able to carry on a two-way conversation while wearing a gas mask has proved to be helpful in giving the new firemen more confidence.

T O S S I T S

KILL MOSQUITOES
20 TIMES FASTER
THAN HAND SPRAYING

NO MOSQUITOES IMMUNE—Our new formula consisting of a combination of newer insecticides gives a 100% kill of all species of mosquito larvae.

EASY TO USE—No equipment needed. TOSSITS are water soluble capsules. Simply toss in water—capsule dissolves—specially formulated "killer" spreads rapidly in all directions.

ECONOMICAL—One TOSSIT will larvacide over 1,000 square feet of water surface; 50 TOSSITS per acre will give 100% kill of all larvae in 24 hours.

TOSSITS are packed 1,000 to the carton, listing at $39.50 FOB, West Palm Beach. Discounts to cities, counties and states.

SENTCO, INC.
(formerly Southern Entomological Co.)
2400 Tamarind Avenue
West Palm Beach, Florida

ROSS
AUTOMATIC
VALVES

Altitude Valves
For control of elevation and heads into and out of tanks, basins and reservoirs, hydraulic control.
1. Single acting.
2. Double acting.
3. Combination assembly for three or more automatic operations.
4. Can be equipped with electric and manual controls.

Combination Valve
This valve will permit flow in one or both directions acting as
1. Pressure Reducing and Relief Valve.
2. Pressure Reducing and Altitude Valve.
3. Relief and Altitude Valve.

Remote Control Valve
Electric remote control — solenoid or motor can be furnished. Adapted for use as primary or secondary control on any of the hydraulically controlled valves

Also—
Pressure-Reducing Valves, Relief and Surge Valves Back-Pressure Valves, Etc.

Established 1879
ROSS VALVE MFG. CO.
Incorporated
P.O. BOX 596, TROY, N.Y.

AD-X2* BATTERY

None genuine without this picture and signature on package

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KEEPS LEAD ACID BATTERIES STRONGER LONGER

Used by individuals, truck fleets, police and industrial firms. Money back guarantee. Treatment for Group 1 and 2 Automotive Battery $3.00. Order TODAY.

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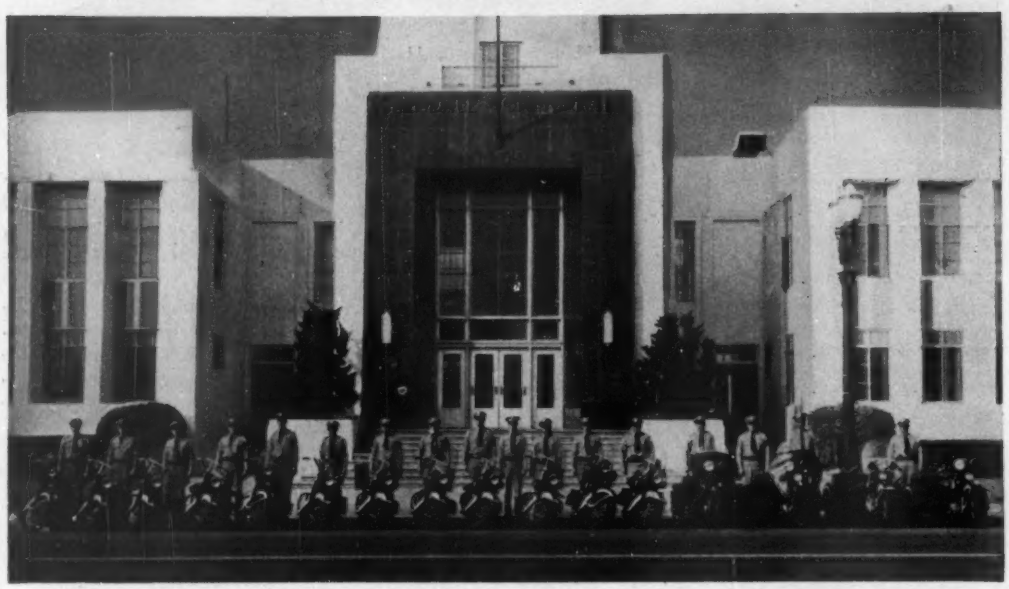
Jess M. Ritchie, Pres.
2411 Grove St., Oakland 12, Calif.
SOME TERRITORIES OPEN

"GLENDALE'S FINEST"

Improve Traffic Control with

HARLEY-DAVIDSON MOTORCYCLES



This fine-looking traffic squad at Glendale, California, is equipped with 12 solo Harley-Davidson Police Motorcycles and 4 Police Servi-Cars.

PROBABLY nowhere does traffic present more pressing problems than in sunny California, mecca for countless tourists and "road's end" for changing populations. Without the aid of the most modern methods, especially motorcycle patrol, traffic control would be difficult if not impossible.

In bustling Glendale, particularly, Harley-Davidson Motorcycles have proved their worth. 12 solo machines and 4 Servi-Cars are constantly helping the hard-working traffic squad maintain its fine enforcement record.

Daily these machines demonstrate their remarkable effectiveness in breaking up traffic congestion, reaching trouble spots swiftly, and in patrolling parking areas and outlying districts. In fact, Glendale police join with experts everywhere in acclaiming motorcycles as unmatched for preventing accidents and maintaining law and order.

In your city, likewise, Harley-Davidsons can increase the efficiency of your traffic force and help reduce accidents. Ask your Harley-Davidson dealer to bring you complete information about Harley-Davidson Police Motorcycles, Servi-Cars and Sidecars, or write

HARLEY-DAVIDSON MOTOR COMPANY, Milwaukee 1, Wisconsin

HARLEY-DAVIDSON

MOTORCYCLES POLICE BETTER TRAFFIC CONTROL **SERVI-CARS**

Single Unit Mobile Radiopak For Fire and Police Vehicles

A single-unit transmitter-receiver for mobile communication in the 152-174 mc band has recently been announced by the Kaar Engineering Co., Palo Alto, Calif. Power output of the Radiopak is 10-12 watts, while battery drain is said to be only 6½ amperes during standby periods and 15 amperes transmitting. Over-all measurements are: 6¾ inches, height; 8 inches, width; 18⅛ inches, length; and weight 24 pounds.

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IN NEW YORK
AT THE GATEWAY TO TIMES SQUARE

600 cheerful rooms, private baths—radio & television Adjacent garage
Air-conditioned Dining Room & Cocktail Lounge Moderate rates
BANQUET AND MEETING FACILITIES

LESLIE PAUL
Managing Director

HOTEL EMPIRE
BROADWAY at 63rd ST.

"See . . . it's Bead Chain . . . just like yours"

NEW YORK CITY SCHOOLS ORDER IDENTIFICATION NECKLACES FOR ALL STUDENTS

BEAD CHAIN—used by the Armed Forces—will be worn by 2,000,000 students

An important move to safeguard the children of New York City was made by the Board of Education in ordering Identification Necklaces for all students in New York Schools. Each student will be issued a necklace carrying a tag on which is stamped the student's identity.

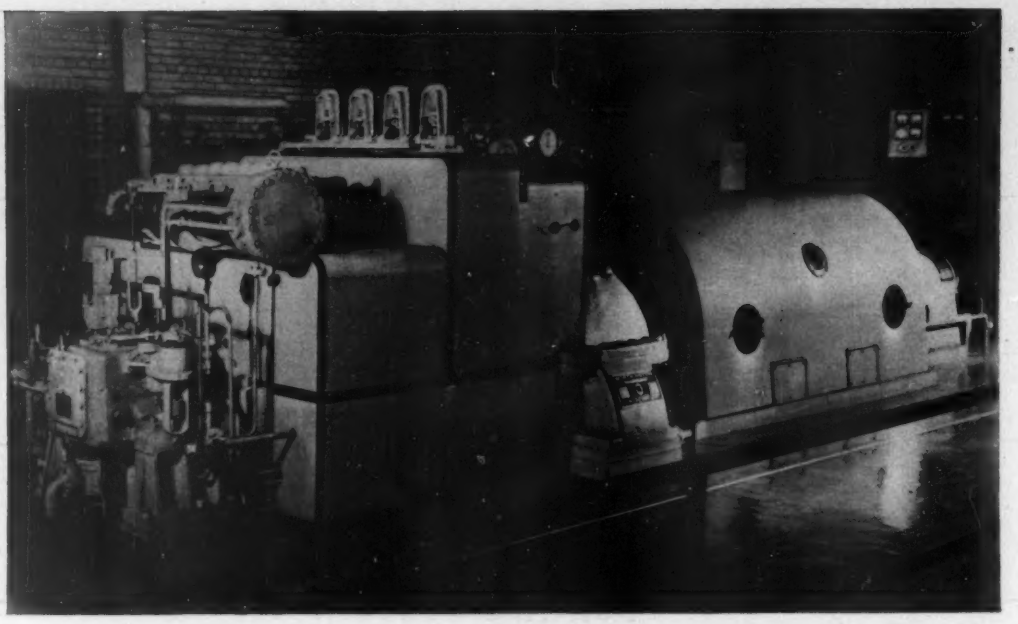
Taking a tip from Uncle Sam, who has had many years of experience with identification necklaces, the New York Board of Education chose a Kinkless Chain to carry the tags.

For years, our Armed Forces have selected Bead Chain for this duty. So flexible that it can't kink . . . attractive, smooth and comfortable . . . and very strong . . . Bead Chain also is preferred for religious chains and many other products made for personal wear.

Other Cities in various parts of the country are providing Bead Chain Necklaces for identification purposes.

Write us for complete information about Bead Chain Necklaces.

The BEAD CHAIN* Mfg. Co.
24 Mountain Grove St., Bridgeport, Conn.
*TRADE MARK



Story of an Economy Drive

How the Worthington Steam Turbine Pays Dividends for the City of Litchfield

What happened at Litchfield, Minnesota, is a clue to a most economical power plant operation.

Originally, the Litchfield municipal power plant consisted of low-pressure boilers, a steam engine and a small turbine-generator unit. The exhaust steam is sold for municipal heating.

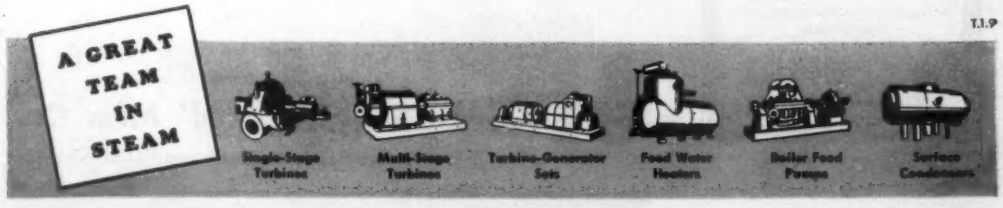
Next—a Diesel engine-driven generator was installed. The load grew, and finally, after a careful survey, it was decided to install a 3000-kw Worthington turbine generator and automatically extract steam for heating purposes.

Worthington builds steam turbines in all types and sizes—and turbine-generator sets up to 10,000-kw. For proof *there's more worth in Worthington*, call our nearest office or write to Worthington Pump and Machinery Corporation, Steam Turbine Division, Wellsville, New York.

WORTHINGTON

STEAM TURBINE GENERATORS

T.I.9



Aerial use of sprays and dust is effective in war against insect pests.

Use of Helicopters Solves Public Health Problems

Aerial use of sprays, fog, and dust has been effective in the cities' war against insect pests which create many public health problems. The Helicopter Division of the Bell Aircraft Corp., P. O. Box 1, Buffalo 5, N. Y., reports that its staff is available to aid municipalities with their particular difficulties.

Through the employment of Bell helicopters, insect pests are satisfactorily controlled by precision application of chemicals. Insecticides can be dispersed in form of fog, spray, or dust, dependent upon types of insects being attacked.

Effective penetration of the insecticide, even through heavy tree cover, is assured by: the powerful downwash of the helicopter's main rotor; the Bell helicopter's capability of precision flight only two to three feet above ground cover and at optimum speeds required for best penetration and distribution of materials, and the dusting, spraying, and fogging equipment developed by Bell Aircraft in cooperation with other manufacturers, especially for use in the firm's helicopter to permit dispersal within quantitative limits desired.

Westinghouse Appointments

The appointment of Harry L. Niederauer as manager of advertising and sales promotion for the Westinghouse Lamp Division, Bloomfield, N. J., is announced by Russell E. Ebersole, staff assistant to the vice-president.

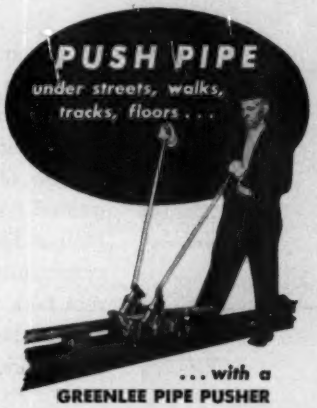
Mr. Niederauer succeeds Herbert E. Plishker, who became lamp sales manager for the firm. Assistant manager of advertising and sales promotion for the past seven years, Mr. Niederauer will keep his headquarters in the Bloomfield plant.

Tomlinson Fort, manager of apparatus sales, reports that Carroll V. Rosenberry has been named manager of the central station department for Westinghouse, Pittsburgh 30, Pa. Mr. Rosenberry succeeds R. S. Kersh, who was appointed manager of the company's steam division at South Philadelphia.

Consulting Engineers

Carl E. Green announces the establishment of Carl E. Green & Associates, consulting engineers, for the practice of civil, hydraulic and sanitary engineering, consultation, reports, appraisals, plans, specifications, and supervision of construction. The firm will be located at 510 Henry Bldg., Portland, 4, Ore.

Mr. Green is a member of the American Society of Civil Engineers, American Water Works Association, Federation of Sewage and Industrial Works Association, and a fellow of the American Public Health Association.



Speed jobs with this quick, simple way to install underground pipe. With the GREENLEE *one man* pushes pipe under obstacles . . . no tearing up of pavement, floors, lawn . . . eliminates extensive ditching and tedious backfilling! Two models and special power pump to fit your various jobs. Write for facts today.

GREENLEE

Greenlee Tool Co., 2026 Columbia Ave., Rockford, Ill.

BRAXMAR BADGES

Standard Badges Since 1879

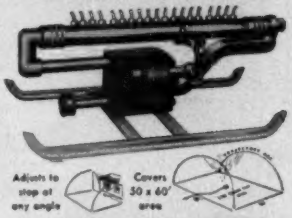
Write for circular illustrating badges for Police, Fire and other City, County and State Officials

John O. Veit, Pres.

C. G. Braxmar Co., Inc.
216 E. 45th St., New York 17, N. Y.

ACME Shower Queen
Waters Over All

300 GALLONS PER HOUR, FALL LIKE *Rain*



Adjusts to stop at any angle

Covers 50 x 60' area

For LAWN and GARDEN BEAUTY

Shower Queen's oscillating action distributes water in natural rain-like manner. Fully automatic. Simple hand adjustment allows it to operate close to house yet windows and walls stay dry. Easily re-positioned without shutting off water. Small plots or large expanses accommodated by regulating volume at faucet. Built of finest non-rusting materials. Precision machined for long and dependable service. Positively guaranteed.

MAIL COUPON NOW — 12345
Please Send Free Data and Shower-Queen Price
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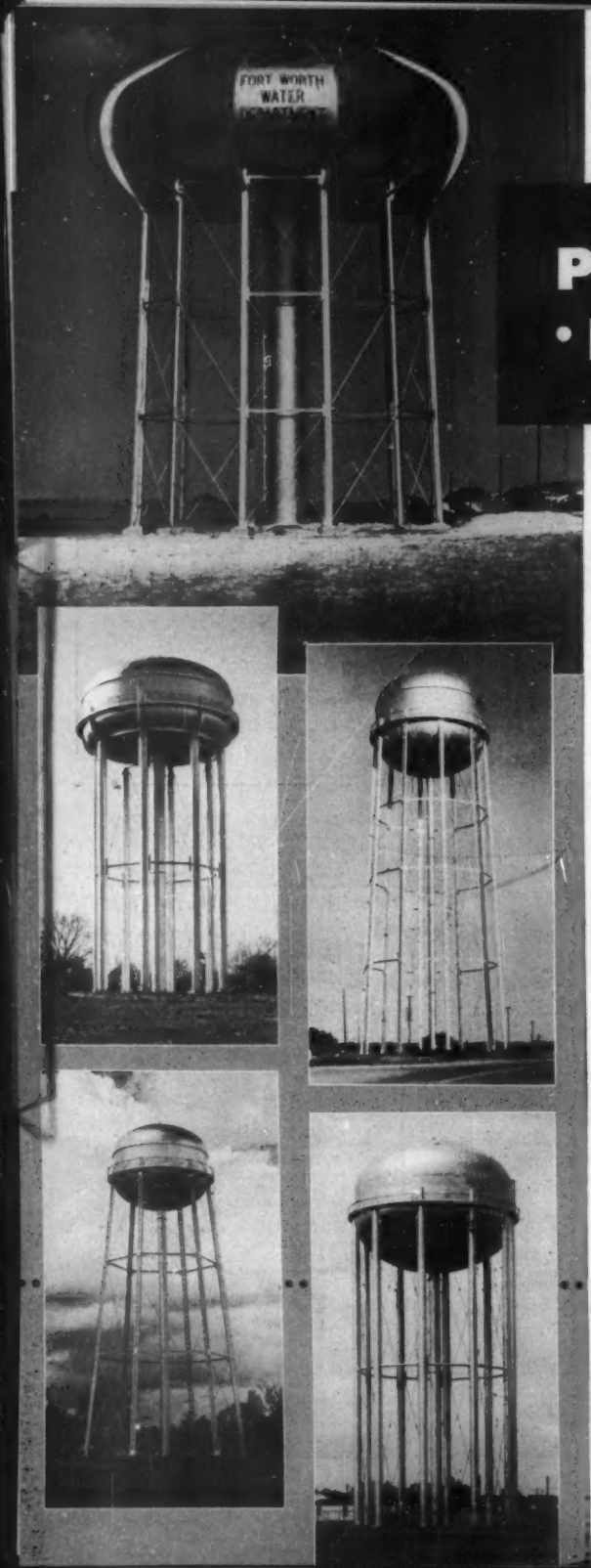
Address_____
City_____ State_____
ACME SPRINKLERS



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Stands for

BETTER WATER SERVICE *with* ELEVATED STEEL TANKS

Ample supply for peak demands—dependable, uniform pressures—reserve capacity for fire protection and pump interruptions . . . these and every other feature of desirable water service are gained through the right Pittsburgh-Des Moines Elevated Steel Tank for specific community needs. Determination of correct tank type and size is simplified by a consultation with experienced P-DM engineers. *Let us cooperate!*

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Sales Offices at:

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CHICAGO (3), 1216 First National Bank Bldg.
DES MOINES (8). . . . . 913 Tuttle Street
DALLAS (1). . . . 1217 Praetorian Building
SEATTLE . . . . . 920 Lane Street
SANTA CLARA, CAL. . . 619 Alviso Road

New Valve Detector

The new box and valve detector is light in weight and compact in size.

A new box and valve detector, known as the Model 303, recently was introduced by the Detectron Co. of 5631 Cahuenga Blvd., North Hollywood, Calif. Designed specifically to detect valves, covers, buffalo boxes, lost tools and other metal objects, the instrument will penetrate asphalt, concrete, earth, brick, snow, ice, and fresh water.

It weighs 7 pounds, features a two-part guarantee covering workmanship, materials, and performance, and has standard, long-life batteries. The manufacturer states that the 303's new type circuit simplifies the tuning, and an untrained worker can quickly become accustomed to its operation.

Detectron also manufactures Model 505 pipe detector. Its eastern representative is the Hathaway Specialties Co., Bradford, R. I.

Cast Iron Pipe Century Club Lists Members

A growing number of municipal water and gas departments, as well as privately owned companies, in the United States, have in their distribution systems cast iron mains that were laid a century or more ago. In view of a widespread interest in these old mains, and a desire to establish a repository for records of their continued survival, an organization was formed by the Cast Iron Pipe Research Association, 122 S. Michigan Ave., Chicago 3, Ill.

The purpose of the Cast Iron Pipe Century Club is to establish an honorary membership in the club for all municipalities or other organizations which have, or are employing or using cast iron mains which have served not less than 100 years in active service.

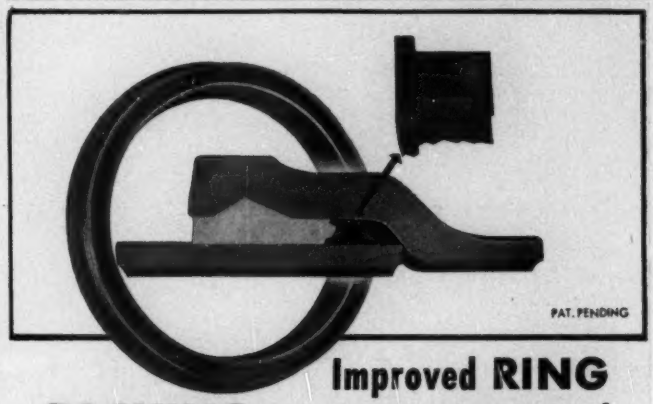
Thomas F. Wolfe, Managing Director of the association, reports that engrossed and framed certificates of honorary membership have been presented to various departments or companies.

Water departments recently receiving certificates included: Albany, N. Y., which laid its pipe in 1851; Zanesville, Ohio, prior to 1850; Pittsburgh, Pa., prior to 1850; Nashville, Tenn., 1834, and the Public Service Commissioners, Halifax, Nova Scotia, in 1846.

Other cities and companies holding certificates are: Board of Water Commissioners, Detroit; Dept. of Water, Gas and Electricity, New York City; Water Division, Boston; Bureau of Water, Philadelphia; Bureau of Water, Reading, Pa.; Bureau of Water, Lancaster, Pa.; York Water Co., York, Pa.; Bureau of Water Supply, Baltimore, Md.; Dept. of Public Works, Troy, N. Y., and Boston Consolidated Gas Co., Boston, Mass.

Also: Philadelphia Gas Works Co., Philadelphia, Pa.; Consolidated Gas, Electric Light & Power Co., Baltimore; New Orleans Public Service, Inc., New Orleans, La.; Water Division, St. Louis, Mo.; Louisville Gas and Electric Co., Louisville, Ky.; Dept. of Public Utilities, Richmond, Va.; Water Dept., Lynchburg, Va., and Water Works Dept., Mobile, Ala.

Mr. Wolfe states that other departments or companies eligible for honorary membership in the club are invited to write him, reporting that cast iron pipe is 100 years old, or older in service, and giving the approximate date of installation.



Improved RING PACKING... assures pouring of dry joints... The Smith-Blair Water-Lock Ring does a real job of packing a bell and spigot cast-iron pipe joint! It is self-locking; it is self-adjusting to oversize bells; its sealing action automatically increases when pressure exists in the line. Made of molded rubber, it is non-porous and cannot be a culture-point for bacteria or any other contaminating element. It is installed quickly by simply rolling it back over the spigot. There is no cutting, fitting or chances for oversight; and its use actually saves on installation time. It is the only sealing ring hydrostatically designed to increase its sealing action automatically from pressure in the line. Effectively dams off water and assures pouring of dry joints.

Hydrostatically designed to hold 40-60 lb. pressure without compound.

Immediate Delivery!

Used with any joint compound. Saves time. Makes a better joint.

Stocked in principal cities. Write for name of your nearest Smith-Blair Distributor.

SIZES 4" through 48"

Packed 50 rings to a carton. Quantity prices based on full cartons.

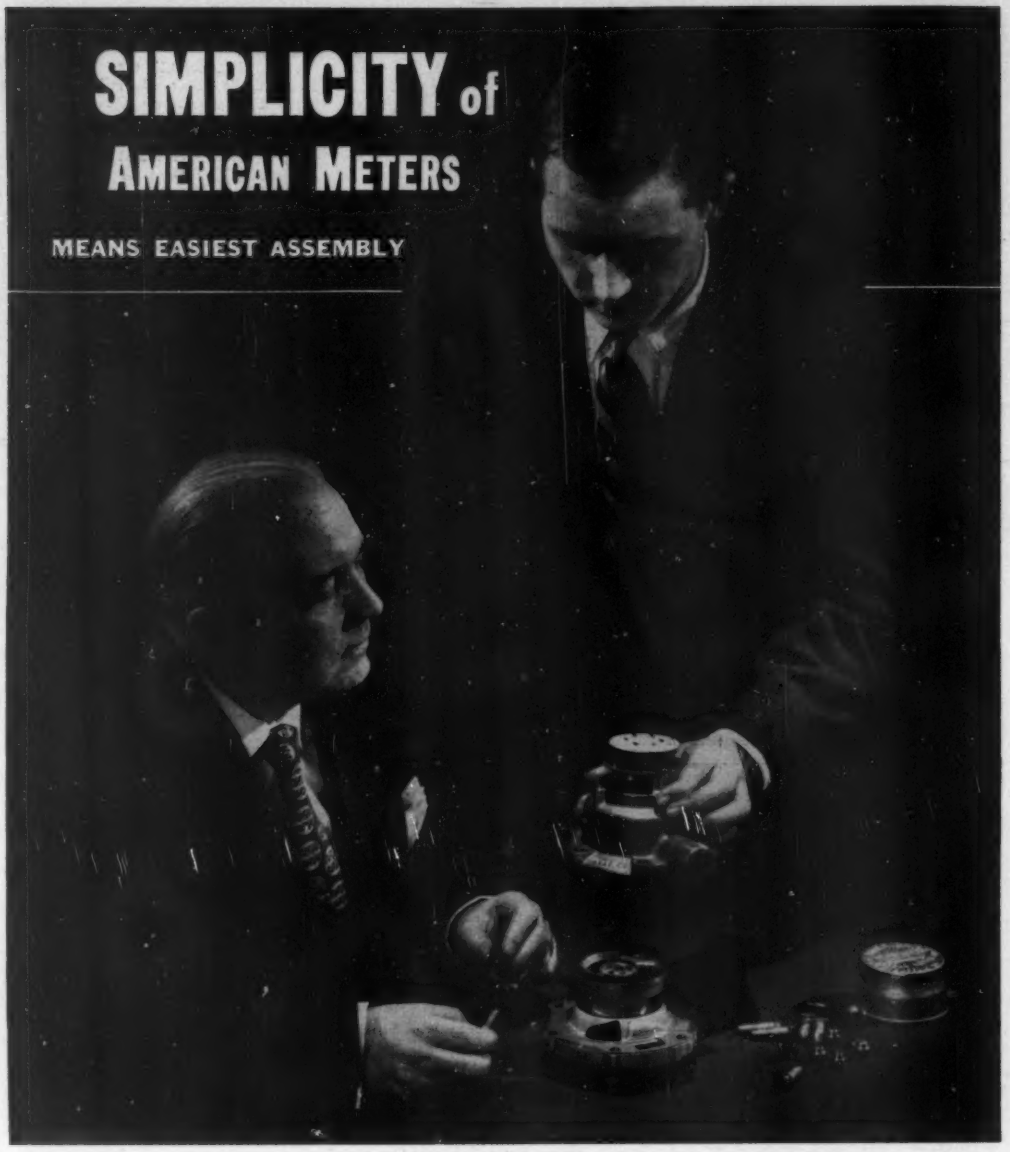
also *BRONZE SERVICE CLAMPS
*STEEL & CAST IRON FLEXIBLE COUPLINGS
*FLEXIBLE REDUCING COUPLINGS

SMITH BLAIR

SOUTH SAN FRANCISCO • CALIFORNIA

SIMPLICITY of AMERICAN METERS

MEANS EASIEST ASSEMBLY



American Meters always assemble right-side up. Works can always be fully inspected after assembly before putting the top casing in place. No locating pins are needed and any way the meter goes together is a right way.

Quick dismantling and re-assembly is possible when repairs are necessary because American Meter parts are fully interchangeable yet have extreme simplicity of construction. These features give you more earning time for each meter, reduce shop time for servicing.

Write today for full information.

BUFFALO METER CO.

2902 MAIN STREET, BUFFALO 14, NEW YORK

A pioneer in police radio work is Harry Quandt of Libertyville, Ill., shown sitting at the control panel of the equipment he designed and helped to engineer. With him is Chief Deputy Sheriff Walter L. Atkinson.

Radio Network Covers Lake County, Ill.

In Lake County, Ill., 19 public safety agencies are joined in a county-wide radio network. Police stations in 12 towns of the area and volunteer fire departments in seven of the towns are linked to a master transmitter and receiver located near Libertyville, Ill. Selective coded controls enable the station to "cut in" or "cut out" all towns not concerned with specific messages. Harry Quandt is in charge of the Motorola system. Should fire or flood interrupt the regular power supply, a 10-kw gasoline-driven electric set made by Kohler Co., Kohler, Wis., starts up automatically.

New England Representative

The Graver Water Conditioning Co., 216 W. 14th St., New York 11, N. Y., announces the appointment of Flagg, Brackett & Durgin, Inc. as its New England representative. The latter company has its headquarters at 405 Park Square Bldg., Boston 16 Mass.

It has specialized in engineering sales work on power plant equipment for approximately 30 years and represents several prominent manufacturers of equipment for power plants, oil refineries, and chemical process plants.

Telephone Controlled Air Horns Blown by Bottled Gas

An air-raid signal used for years in Sweden and Denmark is now offered American municipalities by Leslie Co., Lyndhurst, N. J., maker of reducing valves and whistles. It consists of two air horns of different tones, blown alternately by an automatic valve. The result is sharp, clear blasts of varying pitch and unmistakable identity.

The system recommended is a number of these low air consuming devices located for effective coverage of the municipality. They operate from either bottled gas or gas-station compressors. For remote tripping no special wiring is necessary as they can be tied into standard telephone circuits. They are tripped by applying a slight overvoltage to the telephone circuits.

Change to . . .

BROMINE

FOR SWIMMING POOL DISINFECTION

IT'S AVAILABLE!
(Bromine was not restricted or rationed in World War II)

IT'S SAFER!
(Bromine is shipped "White Label")

IT'S EFFECTIVE!
(High dosage without irritation)

IT'S APPROVED!
(Illinois and many other leading Health Depts. approve Bromine)

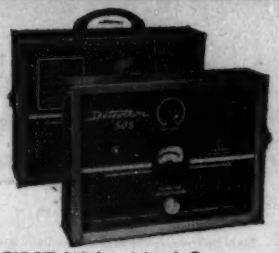
Write Us for Full Information

Supplies
Equipment
Services

HALOGEN SUPPLY CO.

4653 W. Lawrence Avenue
CHICAGO 30, ILLINOIS

Detectron — 505 —
PIPE DETECTORS



FIRST With a Metal Case
FIRST With Shielded Loops
FIRST With "Sure Grip" Handle
FIRST With Lifetime Guarantee

The new DETECTRON Model 505 locates, traces and centers pipes and cables with speed and accuracy. Small, compact, lightweight — with HEAVY DUTY PERFORMANCE.

★ HIGHER QUALITY
★ LONGER LIFE ★ LOWER PRICE
TRIPLE VALUE!

For Complete Information Write for Folder 6-R

Eastern Representative
HATHAWAY SPECIALTIES CO.
BRADFORD, R. I.

THE *Detectron* CO.
5637 CAHUENGA BLVD NORTH HOLLYWOOD, CALIF.

Centerlines take a beating but stay bright with "CATALITE"

paint · and · bead package for STREET and HIGHWAY STRIPING!

Literally millions of crystal clear reflective spheres embedded in a tough, highly reflective binder give matchless, all-weather performance. CATALITE is available in either "drop-on" or "premix". Send for information and low prices.

Cataphote Corporation
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Please rush new FREE CATALITE descriptive pamphlet and prices of your three types of drop-on and also premix for street and highway safety striping. No obligation, of course,

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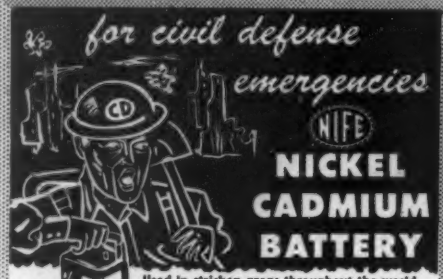
Title_____
City_____
State_____

MFRS. AGENTS INQUIRIES INVITED!

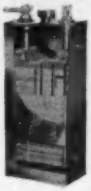


NICKEL CADMIUM BATTERY

Used in stricken areas throughout the world

featuring

- Steel built—withstands shock and vibration.
- Exceptionally low standing losses.
- Extreme long life.
- Undamaged by low temperatures.
- No sulphating, shedding or buckling of plates.



designed for

- Civil Defense Communication in Stricken Areas
- Traffic Controllers
- Hand Lamps and Floodlights for Police Rescue Squads
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- Emergency Lighting Systems
- Diesel Starting

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Let our Editors codify, edit and index your ordinances, bring them up to date, and publish for your city a modern City Code.

Without obligation, one of our Editors will come to your city, check your ordinances, and then will submit a concrete proposal for doing your new City Code.

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LIQUID METERS

All Sizes All Types

WORTHINGTON-GAMON METER DIVISION

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296 South Street Newark 5, New Jersey

LEADITE

FOR JOINTING CAST-IRON WATER MAINS

Melted and Poured *No Large Bell-holes to Dig*
Saves at Least 75%

Leadite is shipped in powder form, packed in sacks of 100 lbs. net each. Leadite tested and used for over 50 years ● Leadite joints improve with age.

Be sure it is Leadite and accept no imitations

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No Caulking

Civil Defense Planners
Police Chiefs
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Is your city prepared for EMERGENCY DISASTERS?

COLLAPSI - COT
PATENT 2517443
can be used...

- . . . to convert panel delivery trucks into emergency ambulances at very low cost . . .
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- . . . where less maneuverable stretchers fail.

Information on how to create emergency and auxiliary ambulance corps with existing or low cost equipment is available from —
EDWARD F. HINKAMP

TEC Industries, INC. (Formerly Emergency Aids Company) 2018 WEST NORTH AVENUE CHICAGO 47, ILLINOIS

Byron Jackson Sales Promotion

The Byron Jackson Co., Dept. 50, P. O. Box 2017 Terminal Annex, Los Angeles, 54, Calif., reports that Theodore R. Colville has been assigned the management of all advertising and sales promotional activities. He will be in charge of advertising for all four divisions.

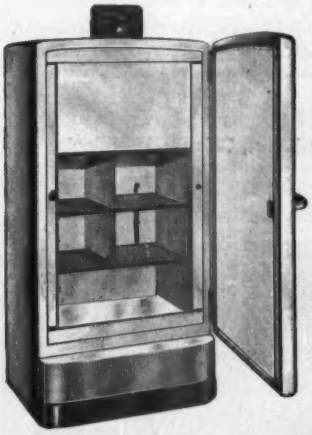
T. R. Colville

With the company nearly two years, Mr. Colville has been advertising manager of the Pump Division. Previously, he had been engaged in the advertising activities of the General Electric Co.'s Chemical Department.

BOD Incubator For Testing of Sewage

The Precision controlled low temperature BOD cabinet is for use in physical, chemical, or biological laboratories, also is adaptable to such uses as biochemical oxygen demand determinations in the treatment and control of sewage and industrial waste flow. A product of the Precision Scientific Co., 3737 W. Cortland St., Chicago 47, Ill., manufacturer of scientific research and production control apparatus, the cabinet maintains constant temperatures by a sensitive, hydraulic thermostat with reference dial.

The electrical hook-up is such that there is no conflict between the heaters and compressor, thus assuring better temperature control and minimizing the amount of electric power consumed.



Precision controlled low temperature BOD cabinet which operates on 115 volts, 50-60 cycles, single phase.

You don't need an Umbrella to Protect...
Revere
ELECTRIC MFG. CO. CHICAGO, ILL.
LUMINAIRES
They're WEATHER-PROOF!
SIDE MOUNTING
PENDANT MOUNTING
FINISHING RINGS FOR SYLVANIA SEALED BEAM LAMPS
Check your lighting needs now! Is your street lighting up to par? How about your park and playground lighting? Do your traffic lights need an overhaul? How does your airport rate for night flying? Are your vital bridges and defense properties protected by adequate lighting?
Call on us for a complete engineering job.
Revere
WHITE-WAY PYLON-LITES
for business districts, boulevards and residential areas.
We Also Manufacture
SINGLE AND DOUBLE ARM ONE-PIECE OCTAGONAL STANDARDS
also BRACKETS FOR MOUNTING DECORATIVE ARMS ON EXISTING WOOD POLES
LUMINAIRES
for use with 2500 to 10,000 LUMEN LAMPS
GREATEST NAME • GREATEST LINE
LIGHTING EQUIPMENT FOR STREETS
AIRPORTS • SPORTS • PROTECTIVE
No Need of Expensive Elevator Equipment for Cleaning Floods
HINGED LIGHTING STANDARDS
Lamps and reflectors serviced from the ground. Just the thing for small cities that cannot afford big maintenance crews.
REVERE ELECTRIC MFG. CO.
6015 BROADWAY
Indoor and Outdoor Lighting Equipment for Every Need
CHICAGO 40, ILL.

Here today – *and still here tomorrow*

THAT'S THE STORY OF ARKANSAS' CONCRETE STREETS

20th St., Little Rock, paved 1923.
Photos taken 1925 and 1949.

Jefferson St., Eldorado, paved in 1913.
Photos taken 1943 and 1949.

Arkansas public officials, motorists and taxpayers have reason to be proud of their old concrete streets. Many of them have served for 20, 30 or almost 40 years.

The surrounding pictures show three of these durable concrete streets. The cars, trees and people have changed, but the concrete pavements continue to serve long after they have paid for themselves.

The outstanding service that these old, durable concrete pavements have rendered in Arkansas is typical of concrete's performance in all sections of the country. Yet long service is only one of the many advantages of concrete pavements:

1. Concrete is safer—night or day, wet or dry—because its gritty surface has uniformly high skid resistance and its light color increases visibility at night.

2. Concrete usually costs less to build than other pavements of equal load-carrying capacity.

3. Concrete pavement costs far less to maintain.

4. Moderate first cost + small maintenance expense ÷ long service life = ***low annual cost,*** the true measure of pavement economy.

For more information about this durable, economical pavement, write today for your free, illustrated copy of *"Concrete for Modern Streets,"* distributed only in the United States and Canada.

PORTLAND CEMENT ASSOCIATION

Dept. A6-4, 33 W. Grand Ave., Chicago 10, Illinois

A national organization to improve and extend the uses of portland cement and concrete . . . through scientific research and engineering field work

12th Ave., Pine Bluff, paved in 1921. Photos taken 1925 and 1949.

Aluminum traffic control arch regulates the flow of traffic over Delaware River Bridge.

COURTESY ALUMINUM CO. OF AMERICA

First Aluminum Traffic Control Arches

Eight Alcoa aluminum traffic control arches now regulate the flow of traffic over the Delaware River Bridge between Philadelphia, Pa., and Camden, N. J., one of the most heavily traveled bridges in the nation. Manufactured of Alcoa aluminum by the Pittsburgh-Des Moines Steel Co., 3412 Neville Island, Pittsburgh, Pa., they are believed to be the first such structures to be made of aluminum.

Each arch holds 16 red and green signal lights to indicate which lanes are closed and which are open to traffic in either direction. Spaced at intervals of 750 feet along the 1.8-mile long span, the eight new aluminum arches make it possible to control traffic for the entire length of the bridge. Formerly, there had been only two control arches, located at the bridge towers. The 79-foot wide bridge roadway is divided into eight traffic lanes, which can be opened and closed in any possible combination under that figure. Each of the arches weighs 8,700 pounds and is 84 feet long, four feet wide, and five feet deep.

District Sales Manager

T. D. Harter has been named eastern district sales manager of the Clamshell Bucket Dept. of the Blaw-Knox Division, of Blaw-Knox Co., Pittsburgh, Pa. He will work out of both the New York and Philadelphia district offices. His main headquarters will be in Philadelphia.

Mr. Harter is well known in civil engineering circles with reference to the application of clamshell buckets and other bulk handling equipment.

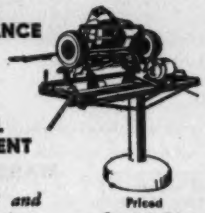
THE MODERN LAWN MOWER SHARPENER

CUTS MAINTENANCE COSTS

•

LOWER CAPITAL INVESTMENT

•



Economically and Quickly Sharpens All Municipal Mowers

Priced $241.50 (less motor)

Sharpens All Reel Type Mowers • Hand, Power or Gang • 10 to 20 Minutes • No Dismantling No Extra Attachments Needed

All reel type mowers, from 5-inch edgers to 36 inch power mowers, are quickly sharpened to extreme ends of both left and right twist reel blades. Handle, wheels, roller and motor repair in place when sharpening is in process. Bed knife is sharpened in same brackets that hold mower in grinding position. No extra attachments required. One lever puts mower or bed knife in grinding position. 100% steel construction. Grinding head rides on five ball bearing races. Small, compact, easy to operate. Sharpens wood chisels, joiner knives and planer blades without extra attachments. Skate Sharpener Attachments available.

1/3-hp. G.E. 60-cycle Motors now available—$21.50 extra.

Send for Free Bulletin No. 258

ORDER NOW • IMMEDIATE DELIVERY

MODERN MFG. CO.
160 N. FAIR OAKS AVE. • PASADENA 1, CALIF

EXPAND with...

EDDY HYDRANTS

Mechanical Joint Connection Cuts Installation Time...

Since 1849 EDDY For Long Service

Eddy Hydrants open smoothly *with* the pressure ... have large, clear waterways to insure plenty of water... close without water hammer. Stem held in place below main valve means no water loss due to bent stem. Positive drip action drains barrel when hydrant is closed —prevents freezing. One man can remove all operating mechanism easily for inspection or repairs. Expand now, to meet any emergency—with Eddy Mechanical Joint Hydrants! Can be installed in any weather, or in a flooded trench. A ratchet wrench is the only tool needed.

Send today for descriptive literature.

EDDY VALVE COMPANY
A Subsidiary of James B. Clow & Sons
WATERFORD, NEW YORK

The SEWER SCOOTER*

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Sewers Clean Themselves With a Sewer Scooter

100% self-propelled for 6" to 96" sewers—Is equally effective for all conditions and problems of sewer maintenance—completely cleans sewers of all sediments: rocks, gravel, sand and "hard-to-move" sludge. Quick and efficient in operation. Investigate today! Ask for Bulletin.

Dealers—Some good territory open

Fitzgerald Engineering Co., Inc. P. O. Box 289-G, Coral Gables 34, Fla.

Finian's

Folly *or (How to Make a Monkey Out of Rising Costs!)*

• • •

Imagine Finian . . . dreaming of reduced overhead by doing away with his organ grinder friend!

Like any good businessman, Finian should have known you can't reduce overhead by eliminating productive labor . . . but you do reduce overhead by making labor more productive.

For years the makers of Warsop Power Tools have been reducing overhead for smart businessmen all over the world by producing rugged, dependable portable rock drills and paving breakers that do more work . . . faster. Yes, the work done by a Warsop Portable Drill or Breaker more than equals four additional men in your crew . . . and can be used on any job, large or small.

You too can make a monkey out of rising costs by aping the many satisfied users who are daily discovering that Warsop Portable Power Tools do more work, save time and money.

Don't delay . . . write today for descriptive literature and specifications.

Contractors, railroads, electric power and water companies, logging road constructors, mining and quarrying companies find Warsop Portable Rock Drills and Paving Breakers especially valuable in:

• Paving breaking • Tamping • Sheathing Driving • Ground rod and spike driving • Trenching • Breaking frozen ground • Rock and concrete drilling

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Mailing: P.O. BOX 1809, WILMINGTON 99, DEL.

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PLANT: NEW CASTLE AIRPORT, DEL.

DIFFERENT TYPES

For different traffic needs

The Steel Head
SUPERIOR

Supreme in strength; in resistance to damage and vandalism.

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Makes Karpark dependability available at a minimum investment.

The Versatile TWIN-O-MATIC

One installation times two cars; has every wanted feature.

The Adaptable UNIMATIC

Takes care of any parking situation—beautifully and efficiently.

The "First Family" of Parking Meters

KARPARK

A METER FOR EVERY PARKING NEED

Write for data to THE KARPARK CORPORATION CINCINNATI 6, OHIO

Elected Vice-President

H. P. Boncher, general manager of the Dresser Mfg. Division, Dresser Industries, Inc., Bradford, Pa., was elected vice - president of Dresser Industries, it has been reported by H. N. Mallon, president.

H. P. Boncher

Other Dresser Industries' officers elected at a board meeting in Dallas, Texas, include: Mr. Mallon, president; J. B. O'Connor, executive vice - president; Arthur R. Weiss, vice-president, and M. H. Nelson, assistant secretary and assistant treasurer.

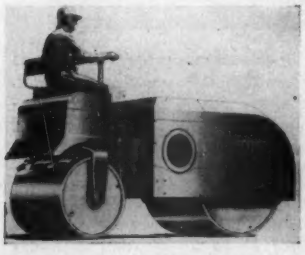
Mr. Boncher became assistant sales manager of Dresser Mfg. Division in 1930, was promoted to sales manager in 1938, and general manager in 1942. He serves on the Steel Water Pipe Manufacturers Technical Advisory Committee of the American Water Works Association.

Tandem Roller Features Transport Towing Attachment

A transport towing attachment is available as an extra on the Galion 3-5 ton variable weight tandem roller. Outstanding features of the roller are hydraulic steering, rugged spur gear final drive, and constant-mesh transmission.

The manufacturer, The Galion Iron Works & Mfg. Co., Galion Ohio, states that the towing attachment makes it possible to transport the tandem roller from job to job like a trailer, speedily, easily, and safely by towing it behind any truck. The complete roller is raised from the ground and rides along on a set of auxiliary roller-bearing wheels equipped with stub axles and heavy-duty pneumatic tires.

Among the construction features are: Twin Disc, over-center, forward and reverse clutches; combination service and parking foot brake; compression roll 48-inch diameter by 42 inches wide; 2-section steering roll 30-inch diameter by 40 inches wide. Equipped with a four-cylinder, 25 hp gasoline engine, the machine has a single lever which controls both forward and reverse speeds.



The new 3-5 ton variable weight tandem roller.

566-foot bridge across Smith River in Douglas County, Oregon. Truss section fabricated by Timber Structures, Inc.

Permanent bridges needed to keep essential traffic moving are readily available in spite of certain material shortages. These are of engineered timber construction, fabricated by Timber Structures, Inc.

The bridge shown here is typical of this construction. It is an actual demonstration of how to build permanent, serviceable, trouble-free bridges on limited budgets. Here are the details of this job:

Bridge is 566 feet long overall, with truss section of 183 feet, and portal clearance of 15 feet. Clear width of roadway is 20 feet, with wearing surface of asphalt bituminous, supported by 2x10 laminations. H-20 loading. Truss chords are glued laminated Douglas fir members, preservative treated and joined to other bridge members with split ring connectors. Total cost of the bridge, including concrete piers, was approximately $150,000.

Five Basic Types of Engineered Timber Bridges

The bowstring truss bridge is only one of five basic types. Others are deck arch, girder, composite deck and parallel chord truss. All five types may be given any desired preservative treatment to protect them against attack by decay or termites.

These bridges are described and illustrated in a new brochure, "Permanent Timber Bridges". Your nearest Timber Structures representative has a copy for you; or you may obtain one by filling out and mailing the coupon below.

TIMBER STRUCTURES, INC.

P. O. BOX 3782-X, PORTLAND 8, OREGON

Offices in New York; Chicago; Kansas City, Missouri; Dallas, Texas; Eugene, Oregon; Seattle and Spokane, Washington

TIMBER STRUCTURES, INC. OF CALIFORNIA • Oakland, California

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P. O. Box 3782-X, Portland 8, Oregon
Please send brochure, "Permanent Timber Bridges" to

Name_____

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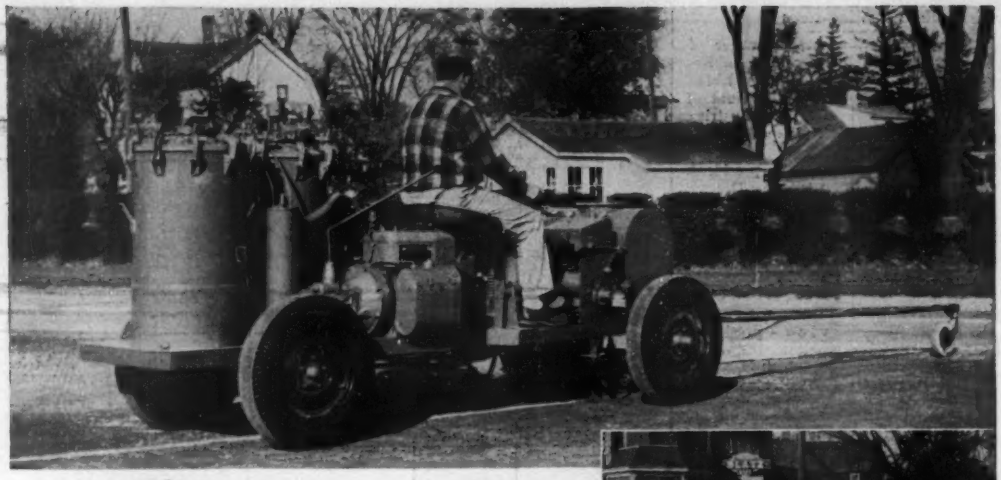
Address_____

City_____ Zone_____ State_____



LAY MORE MILES OF STRIPING
AT LESS COST PER MILE

There's a vast difference in marking machines, in their performance, construction and efficiency. Among public officials who have really tried them all — given them the "acid test" it is significant that Meili-Blumberg markers are first choice.

You can select the exact machine to fit your problems from the complete M-B line — for streets, highways, airports or any marking requirement — each machine the leader in its class.

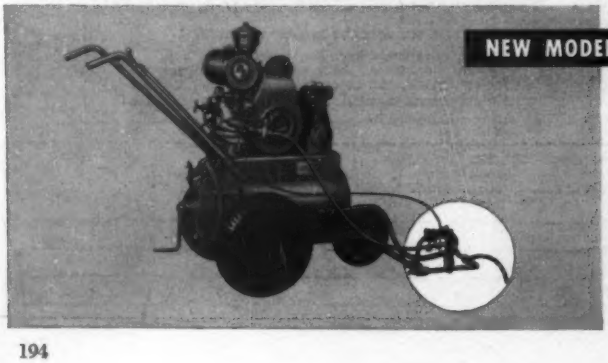
With today's increased traffic problems, it is more essential than ever to provide well marked streets and highways for greater safety and better traffic control.

SUPER 4—Self propelled—20 gallon capacity. Lays single or double line, solid or intermittent; 3" to 6" wide.

MODEL SPR—A small hand propelled, 5 gallon capacity marker. Lays up to 8,000' of 4" line per hour.

MEILI-BLUMBERG CORPORATION

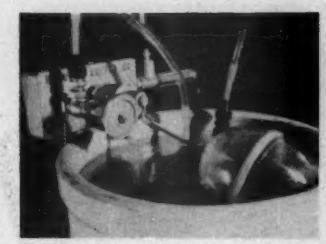
NEW HOLSTEIN, WISCONSIN



NEW MODEL No. E3 WITH JET SPRAY...

A new development in spray nozzles is incorporated in this popular size unit. Tubular spray nozzle throws a concentrated spray for better penetration and coverage. Eliminates dripping and ragged edge lines.

Available in hand or self propelled models. Capacity 10 gallons. Lays 15,000' of 2" to 6" — solid or intermittent line per hour.



Brominator — which feeds bromine into pools.

Sterile Water in Pools Produced by Bromine

The Halogen Supply Co., 4653 W. Lawrence Ave., Chicago 30, Ill., has prepared a leaflet in question and answer form citing the uses and advantages of its product, bromine, which may be used in swimming pool water purification. Bromine is a member of the Halogen family which includes chlorine, fluorine, and iodine of dark brown color. It is a gas similar to chlorine at higher temperatures, and can be stored indefinitely in any protected area without freezing or loss to its effectiveness.

The company states that its product has been approved by health departments in various states, and that it is economical to use because of its inexpensive feeders.

Among the questions and answers are the following:

Q. Is bromine dangerous to the operator?

A. Bromine should be handled just like any acid. It is not under pressure and will not blow up or explode. If elemental bromine comes in contact with the skin, a burn will result. A goodly quantity of water should be used to wash the affected part immediately. Over 24,000 pounds are handled yearly by pool operators and the number of accidents is negligible.

Q. What are the advantages of bromine over other types of disinfection?

A. It has many times the bactericidal effectiveness of chlorine. Its major advantage is that it does not affect the potable qualities of the water, even if used in excessive amounts. It can be used in many difficult cases with no unpleasant effects.

Q. Is bromine compatible with chlorine?

A. Yes. Bromine has been used in the past by several pools where operators want to increase their feeding capacity. By using the inexpensive bromine feeding equipment, the pool operators have been able to use the chlorine equipment and at the same time have standby equipment in case of breakdown of the chlorine equipment.

Q. How is bromine residual checked?

A. The same method is used as for checking chlorine residual. The Taylor Co. has made a comparator slide for use with its equipment. It is also possible to employ a chlorine comparator by using a different ratio.

Q. How is bromine applied to a swimming pool?

A. It is necessary to use a special feeding device known as a Brominator. Bromine cannot be poured directly into the pool water. The firm has designed and patented several types of feeders for its proper application to the pool.

Joins Engineering, Architectural Firm

Marc V. Sullivan of St. Paul, Minn., has joined Hitchcock & Estabrook, Inc., consulting engineers and architects, 300 Lincoln Bldg., Minneapolis 1, Minn. He will divide his time between the home office and the Menominee, Mich. branch.

Mr. Sullivan's 20 years' experience includes assignments with the St. Paul City Planning Board, the Minnesota State Planning Board, the National Resources Committee, the U. S. Engineers, and the Chicago Ordnance District of the Army Service Forces.

Named Vice-Presidents

Joseph G. Grossman, president of the Ward LaFrance Truck Corp., Elmira, N. Y., has announced the appointment of John J. Mosher as vice-president, and F. N. Tracy as vice-president in charge of sales.

NO TIME LOST!
LOADING OR LAYING ITS LOAD

A STANDARD STEEL PRESSURE DISTRIBUTOR GIVES EQUAL CIRCULATION THROUGHOUT THE SPRAY BAR FOR A UNIFORM SURFACE FROM CURB TO CURB FOR LONGER WEAR

STANDARD STEEL
PRESSURE DISTRIBUTOR

The Model 424 can be loaded in quick time for a "fast getaway". A two-way cleaning system guarantees a clean spray bar at the end of the day. First, the material is sucked out of the bar and back into the tank. Then by turning one small valve, cleaning solvent is released into pump and spray bar (without contaminating the asphalt in the tank). No time lost in tinkering — no time lost in loading — Standard Steel 424 keeps going all day long far ahead of the "gravel gang"

WRITE FOR CATALOG 424

OTHER PRODUCTS OF STANDARD STEEL

Maintenance Distributors, Tar Kettles, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard

Standard Steel Works NORTH KANSAS CITY, MO.

What is the one material that gives permanent protection

Only **cast iron soil pipe** — and fittings — can give you *permanent* protection against ground water pollution and escaping sewer gas. The structural strength of **cast iron soil pipe**, plus its absolute dependability of joints, is your safeguard against fracture or leaks from normal ground settlement or root infection.

Cast iron soil pipe has withstood the test of time, by generations of use in plumbing applications — has proved in countless instances that it has less limitations than any other material.

This *proven permanence* of **cast iron soil pipe** — and fittings — is the reason why *your* community, and every community in the country has included in its code, **cast iron soil pipe** — and fittings.

CAST IRON SOIL PIPE INSTITUTE
Heurich Building, 1627 K. St., N.W., Washington 6, D. C.

CAST IRON SOIL PIPE INSTITUTE

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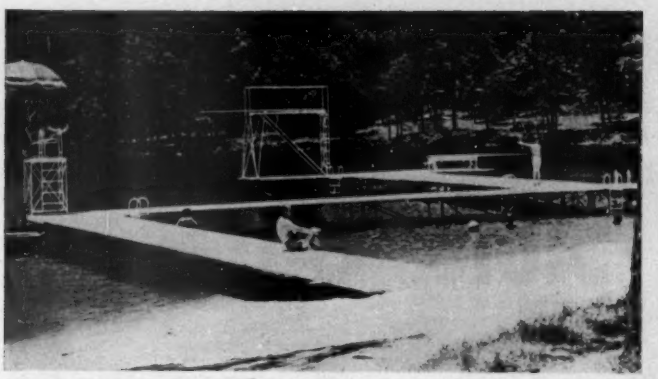

For the summer pleasure of municipalities are this all-steel pier and all-steel benches, diving boards, ladders, and guard tower.

This All-Steel Pier Is Fully Adjustable

For use in communities offering water-recreation facilities is an all-steel, fully-adjustable pier manufactured by Standard Steel Products Mfg. Co., 2836 S. 16th St., Milwaukee 15, Wis. Among its features are quick, easy installation, complete adaptability to any lake or river bed, durability, and safety.

The Standard Steel pier anchors itself on the bottom of any size lake or river bed. No driving of stakes or augering is necessary, since the frames upon which the deck is mounted settle on the bottom, and are held secure by the weight of the pier itself.

The pier is sold in 8-foot sections made up of "H" frames, tie-bars, and side rails. Made of embossed steel to prevent slipping, the decks come in 4-foot sections and slide into position over the frames. Any type of pier layout is possible because of the sectional construction and telescopic legs which make the pier adjustable in height. If a community desires, it may dismantle its Standard Steel pier at the end of the season and store it for the winter.

Water-Softening Unit Has High Rate, Compact Design

Lockland, Ohio, Junction City, Kansas, and Appleton, Wis., and Jennings, La., are typical of the growing list of cities using the compact Dorrco Hydro-Treator to remove hardness, turbidity, color and algae from municipal water supplies.

The Dorrco Hydro-Treator operates at relatively high rates, and uses the sludge-blanket principle for removal of hardness, turbidity, color or algae. Its design produces blanket filtration, clarification, and sludge collection and thickening in three separate zones.

The treating unit has a center shaft which supports a steel drum, sludge scrapers, and four distributing arms. The shaft is powered by a variable-speed drive. The hollow distributor arms revolve in the lower portion of the sludge blanket. Each arm is equipped with a series of baffled orifices which control the feed as it is introduced into the blanket. Two of the arms are equipped with rake blades that plow the settled solids inward to the sludge outlet near the center of the tank.

The Dorr Company has recently issued Bulletin No. 9041 describing this unit in detail. Copies may be obtained by addressing the firm at Barry Place Stamford, Conn.

HELLIGE
SWIMMING POOL
TWIN-KIT

FOR ACCURATE pH AND CHLORINE OR BROMINE DETERMINATIONS . . .

The Hellige Twin-Kit is the finest of the small testers on the market. It is equipped with the famous Hellige Glass Color Standards that never fade or change and carry a lifetime guarantee.

Write for Folder No. 800-F

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INCORPORATED
3718 NORTHERN BLVD. LONG ISLAND CITY 1, N.Y.

Surfa-slick *Patent Applied for*
SELF-HEATING ASPHALT SMOOTHING IRON

Municipalities! This lightweight, rugged, simple, time and money saving smoothing iron will pay for itself in a few days' use.

HOT IN TEN MINUTES
HOT ALL DAY LONG

- RUGGED
- SIMPLE
- SAFE
- ECONOMICAL
- LABOR SAVING
- COMPACT

Dealer inquiries requested

No more building and tending fires on your asphalt jobs!

J. E. WOODS MFG. CO.
1516 First St., San Fernando, Cal.

American Vacuum Leaf Loader
Solves your leaf or clean-up problem

Write for leaflet
LEAF LOADER DIVISION
American Structural Steel and Tank Co.
21050 W. 8 MILE ROAD DETROIT 19, MICH.

CHAPMAN

Standard Sluice Gates

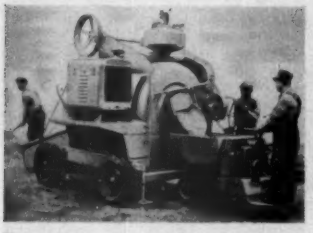
Have Interchangeable Parts that Eliminate Match-Marking

There's no need for match-marking with Chapman standardized Sluice Gates — stem and couplings are completely interchangeable. All repairs and replacement parts can be easily installed in the field *without alterations.*

Depending on your needs, these Chapman Sluice Gates may be operated by hand, hydraulic cylinder or motor unit. The motor unit comes completely wired — ready for installation. For additional information write . . . *today!*

The Chapman Valve Manufacturing Company
INDIAN ORCHARD, MASSACHUSETTS

New Concrete Mixer And Power Fork Lift



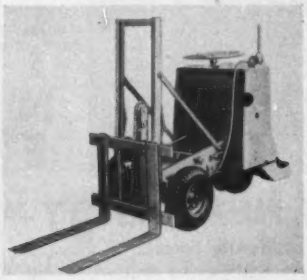
Recent improvements have been made on this new three-bag capacity concrete mixer.

Faster charging is possible with the new concrete mixer manufactured by the Kwik-Mix Co. of Port Washington, Wis., subsidiary of the Koehring Co., Milwaukee 16, Wis. The Model 16-S Dandie has a redesigned selective skip shaker which operates on double contact points, one on each end of the charging skip supporting bar. Powered by a 28-hp gasoline engine equipped with clutch, the machine has a spring-loaded hoist clutch to keep band in proper expansion and eliminate frequent adjustments.

Other major changes in the new three-bag capacity machine include an improved water valve and lever arrangement and a positive Batchmeter actuating mechanism. The mixer is designed for quick interchange in the field for either side or end discharge.

Kwik-Mix also manufactures three smaller-size concrete mixers, 6 and 10-cubic-feet plaster-mortar mixers, 10 and 14-cubic-feet bituminous mixers, and the Moto-Bug, versatile, heavy-duty power wheelbarrow.

Improvements on the 16-S Dandie concrete mixer are described in a new catalog issued by the company.



This new fork lift attached to the power wheelbarrow has a 1,000 pound lift capacity.

A low-cost power driven fork lift attachment for the Moto-Bug was unveiled for the first time at the Materials Handling Exposition held in Chicago from April 30 to May 4. The Moto-Bug, a power wheelbarrow, is manufactured by the Kwik-Mix Co. Other interchangeable front-end attachments that can be fitted to this machine include a gravity dump hopper body, flat-bed platform, scraper blade, and a manual operated fork lift.

Designed to speed material handling operations in industrial plants, shops and in construction work, the new power driven fork lift increases the versatility of the Moto-Bug by quick handling of pallets, boxes, barrels crates, and other bulk objects. It has a 1,000 pound lift capacity, and raises the load to a maximum height of 30 inches. A better load balance is assured by the forks tilting to the rear when being raised.

Total weight of this machine with fork lift attachment is 1,400 pounds.

Surfa-slick Dealers

J. E. Woods, president of the J. E. Woods Mfg. Co., 1516 First St., San Fernando, Calif., announces a dealer and sub-dealers for Michigan and Ohio. The firm manufactures Surfa-slick, self-heating asphalt smoothing iron which is hot in ten minutes and retains its heat all day.

The dealer is Frank D. Messenger, 9005 Dixie Highway, Fair Haven, Mich., and sub-dealers, Edmund Supply Co., 823 Anthony Wayne Blvd., Toledo 4, Ohio, and Southern Ohio Equipment & Supply Co., P. O. Box 407, Zanesville, Ohio.

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Protective Coatings
Safeguard Industry Against Corrosion

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COLD APPLIED TAR BASE COATINGS
ALKYD BASE COATINGS
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PHENOLIC BASE COATINGS
"Industry's Most Comprehensive Family of Protective Coatings"

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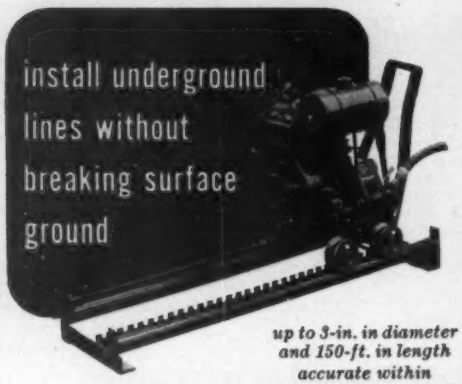
Serving the Nation with Basic Products for Industry and Agriculture
OFFICES: NEW YORK • CHICAGO • ST. LOUIS • TULSA • HOUSTON • LOS ANGELES • SAN FRANCISCO



up to 3-in. in diameter and 150-ft. in length accurate within 1-inch of target area!

FOR WATER, GAS, SEWER, TELEPHONE, TRAFFIC SIGNAL AND MANY OTHER TYPES OF LINES!

Bore a 3-inch hole at 1½ f.p.m....with automatic warning of underground hazards. The EARTHWORM bores 1000 feet of underground line per gallon of gasoline. Use pipe or conduit as drill stem sections and leave as permanent installations. Save pavement and labor...save thousands of dollars per year...with the proved-in-the-field advantages of EARTHWORM!

IMMEDIATE DELIVERY! SEND FOR DETAILS!

LUBE-JACK CO.

P.O. BOX 1100
Santa Monica, California

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Good, exclusive territories are open for fast-selling "FERRO" signs. Every city needs these highly visible porcelain enamel signs.

"FERRO" signs are nationally known, tested, *proved*. Finest quality steel, deeply embossed, finished in brilliant, permanent porcelain enamel.

If you have allied lines and a following, write today for further information.

FERRO ENAMELING CO.
1100—57th Avenue **Oakland 3, Calif.**

Newly Improved
OK CHAMPION POWER SEWER CLEANER

DON'T LOSE Sewer Capacity

Clear your sewer lines regularly. Keep up full carrying capacity and you save money—in lower maintenance cost and avoiding costly backwash. Order OK Champion Power Sewer Cleaner equipment and your men remove roots, dirt and other obstructions from any storm or sanitary sewer in ONE operation. All men work above street level.

OK Champion cleaners are regularly clearing sewers all over the world. New improvements make them better than ever. Send for literature.

CHAMPION CORPORATION
Hammond, Indiana

GET FULL FACTS NOW!

CHAMPION CORPORATION, 4716 Sheffield Ave., Hammond, Ind. Please send information on how the Improved OK Champion Power Sewer Cleaner cuts sewer cleaning costs.

NAME.....TITLE.....

ADDRESS.....

FLORLINE

STREET, SAFETY, PARKING LINES $97.50
F.O.B. Detroit

Efficiently Made at Walking Speed!

Communities from coast to coast are drastically cutting the maintenance costs of traffic and parking lines with FLORLINE. Often pays for itself on the first job! Note these exclusive Florline advantages:

1 man, 1 hand operation. No attachments. Gravity feed.

Makes curved, straight, continuous or skip lines . . . 2, 3 or 4 inches wide with interchangeable carriages.

Holds 1½ gals. paint, lacquer, whitewash. Cannot spill. Portable, efficient, speedy. Pays for itself quickly. Easy to clean, transport and store. FULLY GUARANTEED.

Write today for folder and list of users. Dept. MB.

H. C. SWEET CO.
12083 Woodbine Ave. **Detroit 28, Michigan**

General Sales Manager

T. T. Miller has been appointed general sales manager of the A. B. Dick Co., 5700 W. Touhy Ave., Chicago 31, Ill., and will supervise the firm's field sales activity. He also will continue as regional manager for the eastern region and will be located in the company's general offices in Niles, Ill.

T. T. Miller

Mr. Miller has been with the company, which manufactures mimeograph and lithograph products, since 1926. He served as branch manager in Chicago and Pittsburgh.

North Dakota Okays Parking Meters

The North Dakota State Legislature passed a law in March 1951, allowing cities to install parking meters. According to the American Public Works Association, the measure restricts use of the meters, requiring that half the meters in any city have a two-hour time limit and prohibiting them within 25 feet of a business intersection. All fines from meter violations will be earmarked for school funds.

At least nine North Dakota cities have used meters before, but in 1948 at an initiated referendum, the devices were outlawed, as recounted in THE AMERICAN CITY for October 1948.

Prevents Spread Of Athlete's Foot

A completely new type of product for shower-room sanitation and foot-bath use formulated to prevent the transmission of athlete's foot has been introduced by the West Disinfecting Co., 42-16 West St., Long Island City 1, N. Y. Iodine is the basic active constituent of this product called Showersan which contains Dynepal and an Antara Surfactant, which is a surface-acting agent of the Atnar Products Division of General Dyestuff Corp.

The manufacturer states that laboratory tests show that Dynepal Showersan kills athlete's foot in less than 15 seconds in the dilutions recommended. The firm points out that its product is a preventive against the spread of the ailment and not a cure for this disease.

In addition to being an excellent disinfectant, germicide and fungicide, the company claims that Showersan containing Dynepal is an effective cleaner and may be used on all surfaces for this type of work.

PIPE FITTINGS

Warren fittings, like Warren pipe, are made in all sizes and to all standard patterns for use with cast iron pipe of standard designs.

Special castings to meet your individual requirements may make use of our large stocks of non-standard patterns.

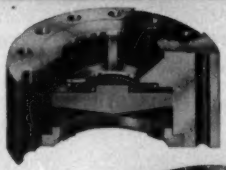
BELL & SPIGOT—FLANGE —SHORT BODY—PLAIN ENDS — MECHANICAL JOINT — SPECIALS

Sizes—2" to 84"

WARREN FOUNDRY & PIPE CORP.

55 Liberty St. New York, N. Y.
72 Federal Street Boston, Mass.

WILLIAMS-HAGER
flanged
Silent check
VALVES



Wherever Williams-Hager flanged Silent Check Valves are installed, plant maintenance men will tell you their costly water hammer troubles are over. These dependable, durable and compact valves can be placed in your water system in any position, including angular, and will provide maximum protection at all times. They are available for every service in standard pipe sizes from 1" to 20". Why not rid your plant of water hammer *now* . . . get Williams-Hager Check Valves.

Write today for Bulletin WH-100.

CHECK VALVES

THE WILLIAMS GAUGE CO.

Pump Valves . . . Water Gauges . . . Gauge Cocks . . . Steam Traps . . . Pump Governors . . . Feed Water Regulators . . . Water Columns

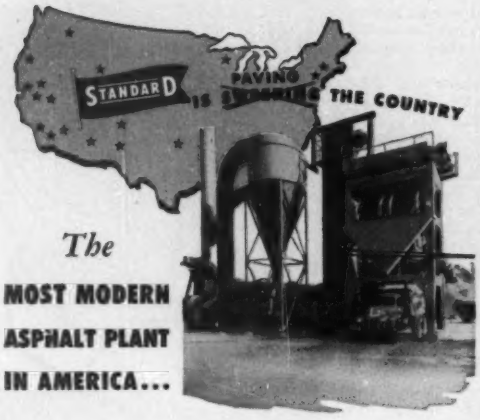
3013 Pennsylvania Ave., Pittsburgh 33, Pa.

LINDSAY MODEL T-33 AIR COMPRESSOR

Water Departments, Municipalities and Contractors choose this powerful low cost compressor for opening service trenches and other jobs for which light paving breakers and rock drills are used. Write for detailed information. Dealerships are available in some areas.

P. K. LINDSAY COMPANY

97C Tileston St. Everett 49, Mass.



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MOST MODERN ASPHALT PLANT IN AMERICA...

From California to New Jersey the new Standard Asphalt Plant is being hailed as the acme of modern design—tops for rugged dependability, yet most economical to own and operate.

Unit built. 8 sizes—500 to 6000 pound batch capacities. *Manual or fully automatic weighing.* Prompt delivery.

Write *TODAY*, for full descriptive catalog.

STANDARD STEEL CORPORATION

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Dependable because they are tough and rugged. Made to withstand the wear and tear of the modern day strain and stress. For generations of incomparable service, only cast iron pipe can qualify. Serving the industry with Super de Lavaud Cast Iron Pipe, centrifugally, in modern lengths.

General Sales Offices
ANNISTON, ALABAMA

We invite inquiries to our nearest sales office

122 So. Michigan Avenue
Chicago 3, Ill.

350 Fifth Avenue
New York 1, New York

ALABAMA PIPE COMPANY
ANNISTON ALABAMA

NEW TYPE EASTERN "A" STANDARD

The most effective warning sign for work areas. Wide base red angle-iron frame won't blow over. Yellow free-swinging sign, black lettering on both sides. Choice of eight standard legends, also reflectorized.

Portable unit stands 27-in. high by 18½-in. wide; folds and locks 18-in. x 18-in. sign in place; flags removable; weighs only 13 lbs.

All Eastern Metal traffic signs are official designs as specified by the Department of Commerce, Bureau of Roads—new legible lettering, heavy-gauge steel and durable flexible baked enamel. Prompt delivery and economical price.

Send for illustrated folder and price list.

INDUSTRIAL • SAFETY
EM SIGNS
UTILITY • TRAFFIC

EASTERN METAL of Elmira, Inc., Elmira Heights 1, N. Y.

For Population Loadings from 500 to 5,000,000

Thousands of communities with P. F. T. Floating Cover Digesters enjoy safe carefree operation. P.F.T. Covers provide complete submergence of buoyant sewage solids, more effective and safe collection of sewage sludge gas and more complete digestion. Effective digestion control regardless of what loading or what portion of tank capacity is employed. Consult P. F. T. Engineers for complete data.

P.F.T. FLOATING DIGESTER COVERS

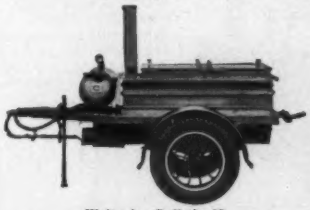
P.F.T. PACIFIC FLUSH TANK CO.

Waste Treatment Equipment Exclusively Since 1893

4241 RAVENSWOOD AVE. CHICAGO 13, ILLINOIS

NEW YORK • LOS ANGELES • SAN FRANCISCO • CHARLOTTE, N. C. • JACKSONVILLE • HONOLULU

Connery's Style W Heating Kettle Made in 75, 110, 165 and 210 Gallons.

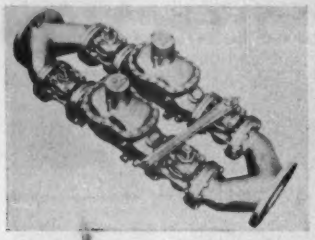


For speedy heating of Tar and Asphalt for road, street and airport runway repairs use Connery's style W kettle, the most efficient heating kettle of its kind.

Write for Bulletin 87.

CONNERY CONSTRUCTION CO.
4000 N. Second Street **Philadelphia 40, Pa.**

Compound Meter Manifold Unit Avoids Plant Shutdowns



Large water users—laundries, process industries, textile mills, dairies, food and beverage processors, many types of machine and other industrial plants, and major domestic water consumers, have long had the problem of proper meter maintenance without costly shutdowns or extra-hour work.

To answer this problem, a new compound meter manifold unit has been introduced by the Rockwell Mfg. Co. 400 N. Lexington Ave., Pittsburgh 8, Pa. The manifold assembly consists of two Pittsburgh-Empire single register compound meters in combination with four Nordstrom lubricated plug valves and two 8-inch reducing manifolds, so arranged that for maintenance one side may be shut down at a time without complete interruption of service. By isolating one side, a meter can be removed and exchanged for one serviced and calibrated in the shop, while flow continues through the other meter passage. With this assembly, it also is possible to check-test a meter in place without a break in service.

R. V. Burnette has been appointed service manager for the Meter and Valve Division of Rockwell. The announcement was made by A. J. Kerr, vice-president of sales, who reports that Mr. Burnette will establish repair procedures in factories and district warehouses.

Mr. Burnette had been with the Standard Steel Car Co., Sharon, Pa., before joining the Pittsburgh Equitable Meter Co in 1926. During the ensuing 25 years he held the positions of junior engineer, gas sales engineer in the Chicago district, and sales supervisor for the Pittsburgh-DuBois Division of gas products for the Chicago, Columbus and Pittsburgh sales districts.

Hotpoint Vice-President

Edward R. Taylor, general sales manager of Hotpoint, Inc., 5600 W. Taylor St., Chicago 44, Ill., has been elected vice-president, it was announced by James J. Nance, president. Mr. Taylor will direct all marketing policies which will be activated through the company's 11 district sales offices, 100 distributor houses, and 13,000 dealers. Hotpoint also produces electric appliances for complete kitchens and home laundries.

Mr. Taylor is well known in the appliance industry and has been active in marketing durable goods in automobile, radio, and appliance industries.

Waco, Texas is using their rubber-tired D Roadster to cut costs on all types of city work. "According to a cost analysis," reports Street Supt. R. L. Burnham, "the D Roadster will move more dirt cheaper per yard cost than any other type of equipment used on similar work."

15 trips per hour

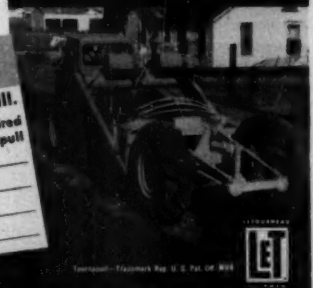
On a recent street construction job, 28 m.p.h. speed on big low-pressure tires made possible fast, self-powered moves daily on a 10-mile round trip from city yard to street excavation. Here, working in tough gumbo materials . . . job studies show 9 ton "D" regularly self-loaded 5 yds. in a little over a minute . . . completed a 1440-ft. round trip in less than 3½ minutes . . . delivered 75 pay yds. per 50 min. hr.

In addition to fast mobility and high-speed yardage, operators liked the advantages of finger-tip controls . . . positive power steer . . . power-proportioning differential. Maneuvering through traffic is easy, big brakes give safe control.

Purchasing recommendation to Waco city officials was made immediately after a demonstration and the enthusiastic endorsement of another LeTourneau owner.

Your city, too, can save time and money with a "D". Contact your LeTourneau Distributor NOW.

In new section, rubber-tired D clears and improves alley. Machine also spreads, compacts, removes garbage, digs drains, trenches, water reservoirs



Mail today to:
R. G. LeTOURNEAU, Inc., Peoria, Ill.
for complete information on 122 h.p., rubber-tired D Tournapull
NAME
TITLE
DEPARTMENT
CITY, STATE

LeTOURNEAU TOURNAPULLS
MORE WORK PER HOUR WITH RUBBER-TIRED POWER

CINCINNATI IS WHIPPING THE HIGH COST OF BULK RUBBISH COLLECTION

Man-hours required for big tonnage collection cut 60 percent.

The City of Cincinnati gives Eight Reasons Why the Dempster-Dumpster System cuts bulk trash and rubbish collection costs and cuts work time from 2.43 man-hours to .98 man-hours per ton of material delivered to incinerator.

Recently a large Southwestern city, investigating the Dempster-Dumpster System of trash and rubbish collection, requested information from the City of Cincinnati on results obtained with the Dempster-Dumpster System. Here is the reply they received from Mr. Ralph C. Taylor, Superintendent of the Waste Collection Division, Department of Public Works.

"The City of Cincinnati Waste Collection Division has been using the Dempster-Dumpster System to augment its regular collection set up since 1948. Our experience since that time indicates that this system, utilizing the principal of large containers which can be left at rubbish accumulation points and easily picked up and carried to disposal point by a Dempster-Dumpster pick-up unit operated by the driver, is highly desirable. Our records indicate that the operation of these units require .98 man-hours per ton delivered to the incinerator as compared to 2.43 man-hours per ton needed in the operation of conventional pick-up with dump truck and crew.

"I have listed below some of the advantages of the Dempster-Dumpster System as we see them.

"1—These large heavy duty containers can be placed on the ground or in specially designed pits if so desired at the point of accumulation and loaded directly by the recipients of the service rather than placing the waste in some intermediate container. This eliminates rehandling by the collection forces in loading into standard collection units, a costly process.

"2—These containers offer a low loading height, making their application easy to any given situation.

AN APARTMENT TYPE detachable Dempster-Dumpster Container is shown above at accumulation point.

ONLY ONE MAN, THE DRIVER, is required in the Dempster-Dumpster System of municipal trash and rubbish collection. Driver is shown above attaching lifting chains to a drop bottom container. He will return to cab and from hydraulic controls hoist pre-loaded container into carrying position and drive to disposal area where materials will be dumped automatically.

"3—This system eliminates the idle time of trucks standing while loading at these points of large accumulations and eliminates lost labor time waiting for the trucks to return after its trip to the disposal area.

"4—The containers are of rugged construction and are practically indestructible. We feel that one of these containers over a period of time will cost less to buy and maintain than the refuse cans it replaces.

"5—Where necessary, leakproof containers may be used, eliminating the spillage of noisome wastes and the resulting unsanitary conditions.

"6—The rat nuisance is practically eliminated with this type of container and we have several outstanding examples where remarkable cleanups were made.

"7—Litter around the loading station is practically eliminated by the use of these containers. This is in outstanding contrast to stations using a great number of the conventional trash cans where the handling of lids and cans by the users usually results in overloading and improper covering.

"8—These detachable containers lend themselves readily to clean dumping at the disposal point. They can also be kept clean and sanitary with greater facility than the small container.

"At the present time in Cincinnati the Waste Collection Division is using these containers for both combustible and non-combustible wastes at the following type of institutions where large quantities of wastes are produced: Schools, Railroad Passenger Terminal (garbage from dining cars), Railroad Produce Terminal, Hospitals, Large Apartment Developments, Social Benefit Functions and Feasts, Circuses and Fairs."

Cities and towns everywhere are installing the Dempster-Dumpster System because no other method of bulk rubbish handling by truck can match the Dempster-Dumpster System in low cost of operation, efficiency, sanitation and good housekeeping! For a cleaner city and a lower budget, it will pay you to investigate the Dempster-Dumpster System. Write today for complete information. A product of Dempster Brothers, Inc.

DEMPSTER-DUMPSTER Container with drop bottom dumping action is shown above as it begins to open hydraulically and discharge trash and rubbish.

DEMPSTER DUMPSTER
TRADE MARK REG.

DEMPSTER BROTHERS
861 DEMPSTER BLDG.
KNOXVILLE 17, TENNESSEE

Sales Engineer

Announcement has been made of the appointment of Leo J. Haller as sales engineer in the Pittsburgh Branch office of the Builders Iron Foundry and its associates, Builders - Providence, Inc., Omega Machine Co., and %Proportioneers%, Inc.

L. J. Haller

Mr. Haller has been a sales engineer with the Superior Valve and Fitting Co., and a practice engineer with the Jones & Laughlin Steel Co., both in Pittsburgh. In the latter position, he was assigned to equipment, maintenance, and repair.

How Heat Exchangers Help Sludge Digestion

Probably the most pronounced advance in sewage-treatment practices in recent years has been the almost universal adoption of heat exchangers to heat sludge, and the retirement of the troublesome coils placed in the tanks themselves.

The coils, while a good idea, never were able to give a thoroughly good account of themselves. The bacteria, in order to do their work of reducing organic material in the sludge, require a favorable uniform temperature. With the coils, it was necessary to add cold sludge periodically to the tank and allow the coils to heat it. This, of course, disrupted the rather delicate heat condition. The coils also had to be heated to a temperature greater than the optimum figure, in order to transmit heat to the sludge. This meant that the sludge would be heated to greater temperatures near the coils.

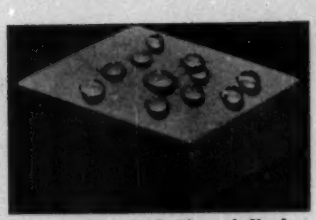
The PFT heater and heat exchanger was one of the first devices designed to overcome this difficulty. Its design was prepared around the special needs of sludge digestion. For the bacterial reduction to take place properly, digesting sludge must be mixed with the raw to "seed" it with anaerobic bacteria. The heater does this, and sends the mixed sludge through the coils of the exchanger, and discharging the two to the digester, either in the center of the tank or at the top in the center. Discharge at the top allows the sludge to flow over any scum that may form and thus breaks down any non-digesting scum layer.

The PFT company has obtained operating data that confirm increases in rate of digestion, improved gas production, and general operating improvements by the use of the digester heater and heat exchanger. A new booklet has been prepared describing the heat exchanger. For a copy, the firm suggests writing for Bulletin No. 235, with the request addressed to Pacific Flush Tank Co., 4241 Ravenswood Ave., Chicago 13, Ill.

Water-Repellent Masonry Coating

Repellotex, a product for transparent masonry waterproofing, renders a water-repellent coating that stops moisture penetration at the surface. It can be applied to concrete, brick, cement block, stucco, and unglazed tile.

Manufactured by United Laboratories, Inc., 16801 Euclid Ave., Cleveland 12, Ohio, this new formulation containing silicone stops capillary action. The company reports that it repells water instantly upon contact; will not injure the surface to which it is applied; is almost impervious to oxidation, and is unaffected by hot and cold temperatures.



Water bounces back like a ball when Repellotex is applied to surfaces.

Repellotex may be applied with brush or spray and dries in about two hours.

TENNESSEE CORPORATION

Ferri-Floc

TC

FERRIC SULPHATE

TURBIDITY

Ferric Salts have proven their ability to coagulate water of widely varying turbidity. Spring rains will bring about turbidity for those who must treat surface supplies. The use of Ferri-Floc will simplify the treatment of this high turbidity. Ferri-Floc is a partially hydrated Ferric Sulphate that has the ability to convert these high turbidities without radical dosage changes.

A large filtration plant superintendent has this to say, "For coagulation of high turbidity with a high PH we have found ferric sulphate to be superior in all cases and we would not hesitate to recommend it."

SULPHUR-DIOXIDE

HIGHEST QUALITY

SO_2

Sulphur Dioxide is effectively used in water treatment to remove objectionable odors remaining after purification.

TENNESSEE TC CORPORATION

Atlanta, Georgia — Lockland, Ohio

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PPD*

-PIN POINT DETECTION

ONLY WITH

GOLDAK EQUIPMENT

The name GOLDAK on electronic instruments, eliminates guesswork ... it's your assurance of Pin Point Detection at all times, in any kind of weather. Throughout the world, with companies who need instruments that are accurate and durable, first choice is GOLDAK.

MODEL L46
SENIOR
LEAK DETECTOR

Detect costly leaks in water and low viscosity fuel lines, in their exact position. Completely portable, simple to operate. Latest electronic improvements and high quality parts, assures unequalled performance. Save time and labor, eliminate costly waste leakage with Goldak Model L46.

MODEL 620
BOX & VALVE
LOCATOR

Pin Point Detection of Goldak's Model 620, saves you time and money, with immediate location of Buffalo Boxes, Valves, Covers and Buried Metals. Large areas surveyed in a few moments. Sharp, clear signals. Untiring operation, weighs only 8 lbs. Sturdily constructed, all-weather use. High quality parts assures maximum sensitivity, low operating and nominal replacement costs.

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Leading Makers of PIPE LOCATORS Since 1933

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GLENDALE 1, CALIF.

Warning signals by *Sparton*

Clear • Strong

Dependable • Economical

Models for most signal needs.

General Alarm Siren
Model 3S

Powerful call heard distinctly up to ⅛ to ⅓ mile. ½-h.p. motor. Weatherproof. Mounted to flat surfaces or adjusted to tilt on outside mounting.

Air Horns

Compressed-air-operated directional type. Clear, commanding signal reaches up to 1 mile. Weatherproof. Two types: Model D2157 for electrical operation; Model 2158 for manual control operation.

Most vital, single step in community defense—civilian warning signals by Sparton! A leading choice of municipalities in World War II and for central fire alarm signals today. Ideal, too, for industrial plants, rail yards and individual strategic areas.

Long Distance Siren
Model 39—3 h. p.

All-directional vertical type. Sound dispersed in all directions. Heard up to 3 miles, depending on local conditions. Mounted on flat surfaces or adaptable for elevated mounting on standard pipe. Long-life operation.

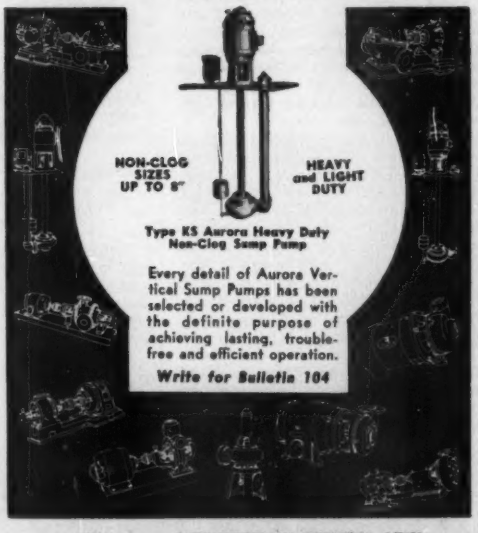
Makers of quality safety signals since 1908.

Sparton

AUTOMOTIVE

Division of THE SPARKS-WITHINGTON COMPANY | JACKSON MICHIGAN

These are Impressive Performers


NON-CLOG
SIZES
UP TO 6"
HEAVY
and LIGHT
DUTY
Type KS Aurora Heavy Duty
Non-Clog Sump Pump
Every detail of Aurora Vertical Sump Pumps has been selected or developed with the definite purpose of achieving lasting, trouble-free and efficient operation.
Write for Bulletin 104

DISTRIBUTORS IN PRINCIPAL CITIES

AURORA Always PUMPS

AURORA

PUMP COMPANY

66 Loucks St., AURORA, ILLINOIS

How to Conserve, Extend Essential Battery Power

Designed to help industrial battery users get the maximum power and life from their batteries for extra defense production during lead cutbacks is Gould's new "Plus-Performance Plan," announced by M. W. Heinritz, vice-president of Gould-National Batteries, Inc., Trenton 7, N. J. The Plus-Performance Plan consists of an integrated conservation program based on applicable charts, manuals, and articles pertaining to the particular users' problems.

Mr. Heinritz points out that it has been estimated that battery performance can be improved by as much as 50% if the following four major rules are practiced properly: selection; charging and handling; maintenance, and determination of condition. This Plan consists of printed material which explains how to choose, install, charge, maintain, inspect, and test batteries. Material it contains is available without cost for users of batteries for industrial trucks, railroad air conditioning and car lighting, railroad signaling and communications, telephone systems, and utility service, and emergency lighting and alarm systems.

Belt-Type Loaders

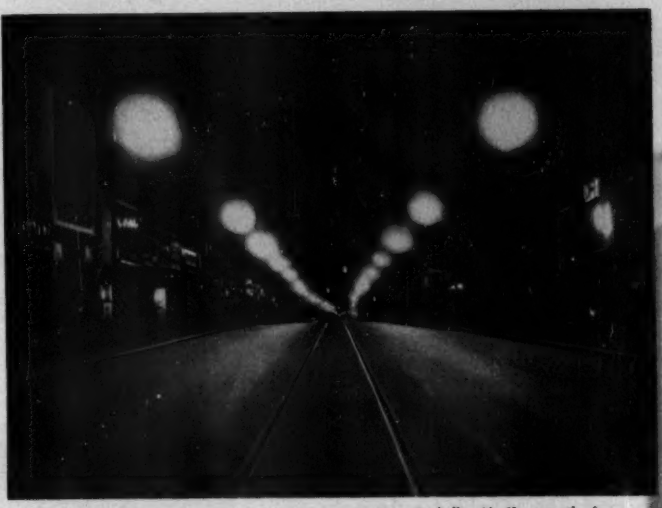
This Fairfield loader handles sand, salt, coal.

For such tasks as loading sand, salt, or coal, the Fairfield Engrg. Co., Marion, Ohio, is finding that its models No. 665 and 666 belt machines are finding increasing use. The boom on these models is raised and lowered by quick-acting hydraulic ram hoist. Model 666 is equipped with high-speed rubber tired wheels, drop center axle, shock absorbers, and trailer hitch.

The company has published a special bulletin describing these conveyors.

On New Rochelle's thoroughfares it's

AMPLEX STREET LIGHTING LAMPS



The vastly improved street lighting system in New Rochelle, N. Y., recently installed under the supervision of Mr. E. P. Byrne, the city's Electrical Superintendent.

IN EVERY PART of America, more and more municipalities and public utilities are changing over to Amplex Street Lighting Lamps. Experience shows that these lamps afford notably superior lighting and maintain an unsurpassed degree of light output during their extra-long service lives. Specially designed and built to withstand the constant vibration and jolts of traffic, they bring outstanding savings on every installation.

There's an Amplex street lighting lamp of the right type and wattage for every purpose. And for the last word in ruggedness and dependability Amplex **Weatherproof Bulbs** are your topmost specification. Made of "hard glass", these moisture-resistant lamps stop failures caused by climatic conditions . . . bring down long-run costs.

For full facts about Amplex Street Lighting Lamps and their superiority on the job, write Amplex Corporation, Dept K-6, 111 Water Street, Brooklyn 1, New York.

AMPLEX

Sealed-Beam Reflector Lamps, Colorbeam Lamps, Spotlites and Floodlites, Industrial Infra-Red Heat Lamps, Vibration and Rough Service Lamps, Street Lighting Lamps, Traffic Signal Lamps, Incandescent Lamps, Fluorescent Tubes, Display Accessories.

With Underwood Sundstrands

"The results have been beyond expectations"

City Comptroller E. T. CREAGH of Niagara Falls, N. Y.

"Six years ago we installed two Underwood Sundstrand tax computing machines in the Assessor's Office. The results have been beyond expectations. Prior to the installation of these machines we were confronted by a very tedious job of preparing tax rolls and tax bills. We are now able to complete the tax roll in less than thirty days where before it required two and a half to three months.

"The only operation required is to place the valuation on the keyboard. The machine automatically figures the tax, divides it into two parts, and prints it simultaneously on the tax roll and the tax bill. As each sheet is completed it can be proven for accuracy by applying the tax rate to the total of valuations shown at the bottom of each page."

Let us send you the particulars

UNDERWOOD CORPORATION

Accounting Machines . . . Typewriters . . . Adding Machines . . . Ribbons, Carbon Papers and other Supplies

One Park Avenue — **New York 16, N. Y.**

Sales and Service Everywhere

Armed Forces Employ Portable Aggregate Dryers To Speed Work of Road and Air Strip Construction

Aggregates used in black-top paving are now being dried by mobile units.

Standard Steel Corp., 5085 Boyle Ave., Los Angeles 58, Calif., recently was awarded a contract to fabricate completely portable aggregate dryers for the Armed Forces to speed the work of road and air strip construction in remote areas. Officially designated as "Aggregate Dryers, Semi-trailer Mounted," the complete units bear a strong resemblance to giant grasshoppers when set up and ready to operate. A shallow hole is dug to accommodate the foot of the cold elevator, at the feed end of the machine. The aggregates go through the feeder and are raised by the elevator to a hopper above the dryer. From the hopper they are gravity fed into the revolving drum of the dryer heated by the same type fuel which drives the 35-brake-hp 1400-rpm motor.

At the discharge end of the dryer the aggregate is picked up by the discharge elevator, carrying it to the discharge spout. A cyclone separates and returns dust from the hot air discharge. For transportation, the main dryer, motor and frame, are pulled as a trailer behind a regular Army truck. The discharge elevator unit folds over after the spout has been removed.

Standard Steel Corp. recently acquired the Dryer Division of the Hersey Mfg. Co. of Boston.

J. H. Green Retires After 46 Years With Eureka

After 46 years of service, Joseph H. Green has retired as sales manager of the Eureka Fire Hose Division of the United States Rubber Co., Rockefeller Center, New York 20, N. Y. Also reported was the retirement of Miss W. May Matthews, Mr. Green's assistant, who had been with the firm 44 years.

Well known to members of the fire service across the nation, Mr. Green joined Eureka in April 1905 as an office boy and rose through the ranks to the position of president of the corporation. When the Eureka Corporation was dissolved and became a division of the U. S. Rubber Co., Mr. Green became sales manager and has held that position ever since.

SINCE 1908

SIRENO

(TRADE MARK)

WARNING SIRENS HAVE LEAD THE FIELD

DEPENDABLE POWERFUL AREA WARNING SIRENS

From ½ to 5 H.P.

RECENT TESTS GAVE 5 H.P. SIRENO HIGHEST RATING

SEND FOR CATALOG A

THE SIRENO CO., INC.

214½ WILLIAM STREET

NEW YORK 38, N. Y.

Water Superintendent for Ecuador

WANTED

Superintendent of Operation: for municipal water system with experience in operation and maintenance of chlorinators, pumping stations, deep wells; installation of copper service connections; meter maintenance and testing. Ecuador, South America. Minimum 2-year contract, salary $8400. Send experience records, references, etc. Suite 52, 1737 H Street, N.W., Washington, D. C.

YOUR EXPENSIVE OFFICE MACHINE IS SAFE ON A "NON-CAPSIZABLE" OFFICE MACHINE STAND

Tusco

TUSCO STANDS ARE ADAPTABLE TO OVER 95% OF ALL OFFICE MACHINES

Tusco Stands provide a combination of strength, stability, operator comfort and beauty available in no other office machine stand. Equipped with an adjustable ball foot the TUSCO Stand provides solid support for the heaviest, most active machines on the most uneven floors.

TUBULAR SPECIALTY MFG. CO.

1940 Stanley Ave. Detroit 8, Mich.

ESTABLISHED 1921

Use "GUNITE," For durability and economy

FOR REPAIRING: Reservoirs, Dams, Filter Plants, Sewage Disposal Plants, Tanks, Stadiums, Bridges, Sea Walls, Breakwaters.

FOR LINING: Reservoirs, Swimming Pools, Tunnels, Sewers, Pipe, Concrete, Brick and Steel Tanks, Stacks, Bunkers, Irrigation Ditches

FOR CONSTRUCTING: Prestressed Tanks, Stacks, Piles, Side Walls and Roofs, Steel Encasements.

The proper maintenance and repair of structures is more important now than ever before.

Write for 48-page illustrated booklet showing "GUNITE" at work.

Nationwide operation Experienced Personnel

PRESSURE CONCRETE COMPANY

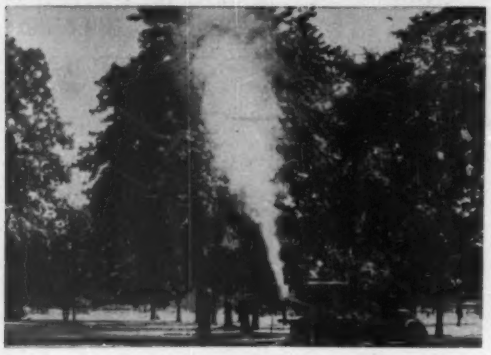
NEWARK 5, N. J. 193 Emmet Street

CHARLOTTE, N. C. Liberty Life Bldg.

CHICAGO, ILL. 33 No. La Salle Street

FLORENCE, ALA. South Court Street

GET FAST, THOROUGH COVERAGE of large areas with a *John* BEAN ROTOMIST!



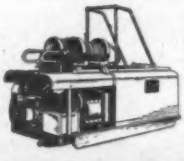
Better pest control for shade trees and parks because of Rotomist Controlled Performance

Rotomist will do a better job for you because it delivers atomized spray concentrate of the correct micron size, but at relatively low air velocities so there is no damage to trees. Rotomist accomplishes this by pre-atomization with a powerful auxiliary blower in a 240-mile-per-hour air stream. Then the controlled mist is delivered to the main air stream of lower velocity. With Rotomist you get maximum protection for the trees plus efficient use of spray material as the spray droplets get on the foliage but are not large enough to cause wasteful run-off.

Rotomist can apply dry dust, wet dust or concentrates and get thorough coverage over large area and into the tops of tall shade trees.

Easy, precise operation is made possible by Rotomist's hydraulic controls. Write for a free Rotomist folder for complete information.

• RANGER is your all-purpose sprayer



You'll find dozens of uses for a John Bean Ranger, an all-purpose municipal sprayer for weed, insect, brush and pest control. High-pressure hose on two drums makes it easy to spray in hard-to-get-at places.

John fmc **BEAN**
LANSING 4 MICHIGAN
DIVISION OF FOOD MACHINERY & CHEMICAL CORP.

JOHN BEAN
Department AC-4, Lansing 4, Michigan
Please send me information on
☐ ROTOMIST ☐ RANGER

Name_____

Address_____

City_____ State_____

USED LUMINAIRES AVAILABLE

Used sodium vapor luminaires.

34 used General Electric, Type M-2 Series Sodium vapor luminaires, catalog #A80012;

30 used Westinghouse, series, butterfly, suspension mounting sodium vapor luminaires, catalog #678445-A-1.

Address:

Commissioner of Supplies
City and County Building
Denver, Colorado

A STATEMENT OF ADVERTISING PRINCIPLES

1. Good Advertising— aims to inform the consumer and help him to buy more intelligently.
2. Good Advertising— tells the truth, avoiding misstatement of facts as well as possible deception through implication or omission. It makes no claims which cannot be met in full and without further qualification. It uses only testimonials of competent witnesses.
3. Good Advertising— conforms to the generally accepted standards of good taste. It seeks public acceptance on the basis of the merits of the product or service advertised rather than by the disparagement of competing goods. It tries to avoid practices that are offensive or annoying.
4. Good Advertising— recognizes both its economic responsibility to help reduce distribution costs and its social responsibility in serving the public interest.

Advertising Federation of America

Manages Worthington Steam Turbine Sales

A. F. Reinking has been named manager of the Steam Turbine Sales Division of the Worthington Pump and Machinery Corp., Harrison, N. J., according to an announcement by T. Cruthers, sales vice-president. Formerly assistant sales manager, Mr. Reinking will continue to make his headquarters at the firm's Wellsville Works.

A. F. Reinking

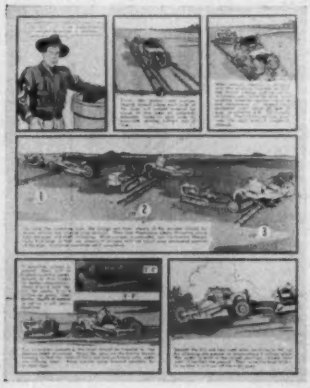
Mr. Reinking completed the Worthington Student Training Course in 1927, and was assigned to the New York district office. In 1929 he joined the Moore Steam Turbine Corp., but again became associated with Worthington when that corporation was purchased by Worthington in 1936.

Instructions for Operators Of Heavy Equipment In Comic Book Style

A four-color handbook printed in comic book style makes the operation of Caterpillar earthmoving equipment easy to understand. This new book is being distributed by Caterpillar Tractor Co., Peoria 8, Ill.

The publication shows the techniques in earthmoving operation as compiled by operators and engineers in the field; contains information on the operation of bulldozers, scrapers, rippers, and cable controls, as well as material on high speed hauling, loading, and grade stakes familiarization.

Techniques are simplified through the use of familiar scenes in the cartoon illustrations which show the operator how to get the best performance and job application possible. The book tells the story through a typical job foreman, who talks about various techniques needed for efficient tractor-dozer operation.



The procedure for proper covering of culverts with tractor-scraper unit is illustrated through the use of cartoons in the new four-color comic book for heavy equipment operators.

Protect That Steel With This Paint

From internationally known consulting engineers, from utilities, industries, come testimonial evidence that Ebony paint can and does positively protect steel structures from rust and corrosion. Since it is not an oil paint, the company points out that it leaves no pores for moisture to soak in and cause corrosion. The paint is made of gums and chemicals. It can be applied with a smooth, unbroken film and is not affected by heat, cold, alkalies, or acids. It carries a 5-year guarantee that it will not crack, blister, or peel, or permit rust to form. It has been used successfully on bridges, elevated water tanks, standpipes, steel buildings, smoke stacks, building gutters. The special roof coating renews both gravel and concrete roofs to substantially new condition.

Literature describing the paint may be obtained from Ebony Paint Mfg. Co., 18th St. and Agnes Ave., Kansas City 1, Mo.

What's the shape of your job?
BLAW-KNOX
Curb and gutter forms will handle it at lower cost
WHATEVER kind of street paving work you have, one set of Blaw-Knox Steel Street Forms handles every curb, curb and gutter or sidewalk job, from simple straight work to curved or serpentine shapes. Completely interchangeable, they can be used over and over in combinations to fit a wide variety of jobs. You get better quality work while saving time and money. Start your set of Blaw-Knox Steel Forms now — expand it any time to meet future requirements.
Straight curb forms
Curb and gutter forms
Sidewalk Forms
Send for Bulletin 2259
BLAW-KNOX
BLAW-KNOX DIVISION of Blaw-Knox Company
2009 Farmers Bank Bldg., Pittsburgh 22, Pa.
New York • Chicago • Philadelphia • Birmingham • Washington • San Francisco

GET THOSE WEED ROOTS!

GO TO THE ROOT OF YOUR WEED PROBLEM WITH THESE DOLGE PRODUCTS

Dolge SS Weed Killer

Where no vegetation whatever is desired such as your parking places and walks. Penetrates deep down to plant roots and **kills**. Sterilizes the soil, preventing normal sprouting of wind-blown seeds. Weeding the thorough, modern chemical way eliminates backbreaking toil and saves the cost of many labor-hours.

E.W.T. Selective Weed Killer (2-4-D)

The efficient way to control weeds on your seeded areas. Works its way down into the roots of brush, dandelion, plantain, poison ivy, ragweed, sumac and other obnoxious plants, but does not injure most turf grasses.

Please write for descriptive literature explaining how these tested DOLGE products can best be used for your weeding requirements.

Dependable DOLGE
WESTPORT, CONNECTICUT

Self-Propelled

Saw before Breaking . . . and get better patches, reduced breaking tool time and lower cost patching.

Saws concrete or asphalt . . . faster and at less cost! Self-Propelled feature means substantially longer blade life and fewer manhours on the job. For maximum sawing efficiency use the Self-Propelled CONCUT Saw and CONCUT Blue Blades.

ONLY CONCUT GIVES YOU THESE FEATURES
Self-Propelled . . . virtually operates itself.
Finger-Tip Control . . controls, valves and gauges on dash panel.
Lever Lock . quickly raises and lowers blade.

WRITE FOR BULLETIN 12

The Greatest Name in Concrete Saws

CONCUT
CONCRETE SAW

CONCRETE SAWING EQUIPMENT, INC.
200 Union National Bank Bldg., Pasadena 1, Calif.

The NEW 1951 City Special
SAFETY LINE MARKER

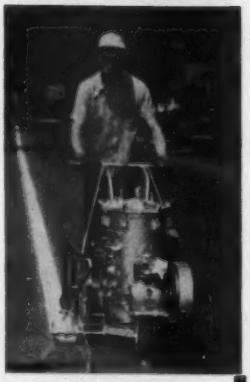
VERSATILE—
paints streets, crosswalks, parking lines, industrial plants, safety zones

COMPACT—
upright tank — light weight

STURDY—
one-piece steel tank — balloon tires, non-corrosive metal

ACCURATE—
ribbon-like, no-bleed lines on any surface

EFFICIENT—
paints for hours on one filling of paint and air



Also available with 2, 7, 10, 12-gallon tanks with engine and compressor built on—hand or traction drive models—paints 2 to 6" lines.—Single or double lines. Bead Dispensers. Truck models. New curb marking attachment available.

G. N. SPIESS EQUIPMENT CO.
Phone: Bluemound 8-5387
6823 W. Aetna Court — Milwaukee 13, Wis.

Rotary Scythe Mower Eliminates Raking

A rotary scythe mower that turns clippings into mulch and eliminates raking is reported by Whirlwind, Inc., subsidiary of Toro Mfg. Corp., 3731 N. Richards St., Milwaukee 12, Wis. The new tractor-drawn Whirlwind rotary cutter has among its features a triple universal joint drive to absorb power of the largest farm tractors; adjustable cutting height which is easily adjustable by lever from level to 14 inches, and two skids (optional at nominal extra cost) to protect blades when wheels drop into ruts or holes.

According to the manufacturer, the Whirlwind Twin 80 rotary scythe mower cuts a clean swath 6 feet 8 inches wide through heavy weeds and brush. Clippings are finely shredded and scattered, eliminating the need for slow, costly raking.

Twin cutting suction blades are among the equipment of this new rotary scythe mower.

Shear bolts protect the twin cutting suction blades. The machine has Timken tapered roller bearings in its wheels and agricultural-type pneumatic tires.

The company states that its equipment saves time and money and is ideal for use by highway departments, parks, estates, and golf courses.

Opens Consulting Office

Richard Hazen, formerly a partner in the consulting firm of Malcolm Pirnie Engineers of New York City, has opened an office in his own name. His headquarters are at 110 E. 42nd St., New York, N. Y.

Mr. Hazen plans to confine his work to municipal and industrial water supply and treatment, and sewage and industrial waste disposal.

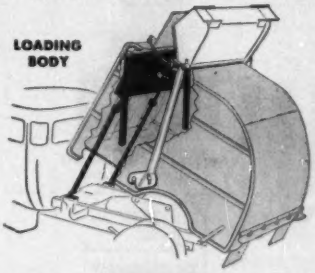
He has been affiliated with Malcolm Pirnie since 1937 and was made a partner in the firm in 1946. During the war he served as a Lieutenant Commander in the Civil Engineering Corps and had charge of water and sewage projects at Navy installations along the Atlantic Coast. The most recent of his work has included the preliminary design of a water supply and sewerage system for Monrovia, Liberia. He also was in direct charge of investigation and reports on water supplies for potential synthetic liquid plants throughout the United States in a survey made for the Department of the Army and Bureau of Mines.

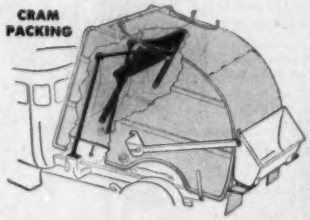
BOTTOM COST, TOP PERFORMANCE with

St.Paul Pax-all
REFUSE LOADER

New Model Pax-all offers these big COST-CUTTING advantages and improvements:

1. CRAM PACKING: New *load retaining* feature insures a *full load* each trip regardless of nature of rubbish.
2. REAR CONTROL: Furnished as alternate to cab control; loading cycle is completed automatically while men continue collecting.
3. SANITARY: All enclosed body has rubber-sealed, watertight tailgate. Hatch opens only during loading, then serves as windshield. Rounded inside body corners assure clean dumping.
4. LOW COST: Pax-all is still the lowest priced compaction-type loader. It is used with low-cost, relatively light weight trucks. Minimum operation and upkeep costs assured because of light weight and having only one hydraulic cylinder and pump to maintain.





For further information please use coupon below

ST.PAUL HYDRAULIC HOIST, 2207 University Ave. S. E., Minneapolis 14, Minn.

Send me literature and complete information on the St.Paul Pax-all.

Name.....

Title.....

Address.....

City, Zone.....

State.....

A brief note about your present method of refuse collection and disposal, size of fleet, replacements contemplated, etc., would enable us to give you more complete information.

Modernize and Economize with Pax-all

Long Life

EMBOSSED REFLECTORIZED TRAFFIC SIGNS

WRITE FOR CATALOG

Cataphote Corporation

TOLEDO, OHIO

You Get Longer Service, Less Maintenance, Greater All-Around Dependability with

GOLDEN-ANDERSON

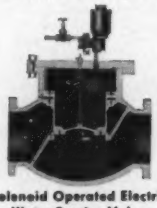
Cushioned

Steam and Water Pressure Valves

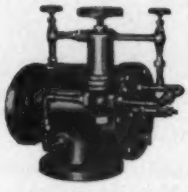
One of these eight valves will ideally meet your requirements

Single-Acting Non-Return Valve

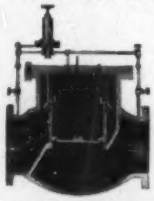
Altitude Control Valve



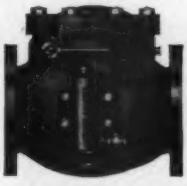
Solenoid Operated Electric Water Service Valve



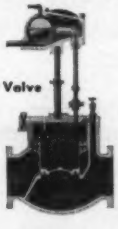
Surge Relief Valve



Water Pressure Reducing Valve



Swing Check Valve



Cold Water Float Valve

Triple-Acting Non-Return Valve

Our descriptive bulletins covering these various valves gladly sent on request.

GOLDEN ANDERSON *Valve Specialty Company*

2093 KEENAN BUILDING • PITTSBURGH 22, PA.

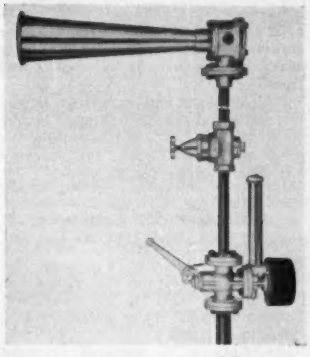
New Type Battery Designed for Long Life

The Nife battery, together with this spotlight attachment, makes an ideal emergency light because of the battery's long life and resistance to deterioration when not used.

Long life, no deterioration when not used, great resistance to shock, low-capacity drop at high discharge rates are among the characteristics of the Nife nickel-cadmium battery that its manufacturers point out make it especially useful for emergency power.

The battery is particularly useful for starting diesel engines, relay operations in power stations, radio and signalling uses, emergency and portable lighting. Nife, Inc., 165 Broadway, New York, N. Y., manufacturers of the battery, has a new booklet describing it in detail.

An Air Horn for a Square Mile of City



A practical air-attack signal should be capable of operating individually or in unison, manually or by remote control. Its sound must carry over sizeable areas. The tone should be unmistakable as to purpose. These characteristics, with the added features of ability to sound code signals, are possessed by the Diaphone compressed air horn made by The Gamewell Co., Newton Upper Falls 64, Mass.

The Diaphone horn is characterized by great carrying power, distinctive and unmistakable tone, and the ability to sound coded signals in short and distinct blasts. The sound penetration varies with the topography but in open, level country or over water the Type B Diaphone horn has been distinctly heard at distances in excess of six miles. In closely built urban areas buildings and street noises tend to decrease the effective range. Under such conditions it is estimated that on an average one Type B Diaphone will effectively serve an area of at least one square mile.

Michigan Sewage Plant Awards $1,750,000 Contract

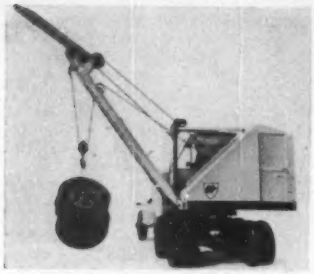
The Welsbach Corp., Construction Division, 1500 Walnut St., Philadelphia, Pa., has been awarded the contract for the construction of a sewage disposal plant to serve the cities of St. Joseph and Benton Harbor, Mich.

Frank R. Harris, who will be in charge of construction, said that work on the $1,750,000 plant started on May 15th. It will be located on Terminal Island, situated in the St. Joseph River between the twin cities.

When the proposed plant is completed about the end of 1952, it will be of the activated sludge type with separate sludge digestion and sludge filtration of a nominal capacity to provide primary treatment to a flow of 8 millions gallons per day and a secondary treatment to a flow of 4 mgd.

2
1
3
3-purpose part. Ingenious design is a feature of Mathews Hydrants—for example, use of a shield operating nut of high tensile iron. This serves three purposes.
1 It protects the soft bronze revolving nut from wrench wear.
2 It is cheaper to replace in case of damage by pipe wrenches or other improperly fitting tools.
3 It prevents dust, snow, rain or sleet from getting in around the revolving nut, always assuring free and quick operation.
MATHEWS
HYDRANTS
Made by R. D. Wood Company
Public Ledger Building
Independence Square, Phila. 5, Pa.
Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R. D. Wood Gate Valves
Mathews Modernized Hydrants offer these advantages
All working parts contained in quickly replaceable barrel • Stuffing box cast integral with nozzle section —positively leakproof • Head turns 360° • Replaceable head • Nozzle sections easily changed • Nozzle levels raised or lowered without excavating • Protection case of "Sand-Spun" cast iron for extra strength, toughness, elasticity • A modern barrel makes an old Mathews good as new

New Crane Adaptor For Bantam Back Hoe



New Schield Bantam Crane Adaptor attaches to truck-mounted Bantam back hoe in five minutes.

The new back hoe Crane Adaptor developed by the Schield Bantam Co., 234 Park St., Waverly, Iowa, saves considerable time in handling pipe replacements or new installations, which previously required costly one-purpose equipment and extra work crews for trenching, hoisting, and back-filling operations.

According to G. O. Britton, sales manager, "Now, one crew with a truck-mounted Bantam back hoe digs 100 feet of 5-foot trench per hour; converts to crane hoist on the job in five minutes for lowering pipe and valves into trench, and hooks on fast-change Bantam backfill blade to backfill own trench at the rate of 350 feet to 400 feet per hour."

The patented Crane Adaptor fits standard ⅜-yard Bantam back hoe, and uses same boom, stick, and same one-man operation with full circle-swing for economical spotting of gas, water, oil, or sewer pipe sections weighing up to 2½ tons.

Mower With Saw, Cultivator Attachments

The Bachtold mower with saw and cultivator attachments is ready for use in summer or winter and saves time and money on many different essential jobs, according to the manufacturer, Bachtold Brothers, Inc., Forrest, Ill. The mower has a built-in clutch which enables you to start and stop cutting blade or saw blade instantly, and permits easier starting. Finger-tip throttle control is conveniently located on handle bars.

The self-propelled model has two forward speeds, low for cutting tough blue grass, and high, for weeds and other light cutting, and for movement to and from the field. Also available is the push-type model. The mower can be obtained with either a 1½ hp or 3 hp Clinton engine.

This machine mows—cuts fence rows, fields, and lawns; cultivates—replaces four separate garden tools, and saws horizontally and vertically.

Carlon Corp. Opens Plant in Asheville

The Carlon Corp., 10225 Meech Ave., Cleveland 5, Ohio, announces that a new Carolina Division has been established in Asheville, N. C.

Carlon plastic pipe is recommended for applications in municipal water systems as well as in other special application. It is suitable for land irrigation and drainage, piping of jet wells, and for lawn sprinkler systems.

The new plant will begin its production with Carlon TL pipe which is rigid and can be threaded with standard pipe dies. Because it is extremely light in weight, it eliminates the need for heavy materials handling equipment and is installed easily and quickly. Guaranteed against rot, rust, and electrolytic corrosion, TL like all Carlon plastic pipe, will not dent, split or break, and resists the effects of corrosive soils, waters, and most chemicals.

Infilco Advertising Manager

Infilco Incorporated, 325 W. 25th St., Chicago, Ill., has completed the removal of its executive and engineering offices to Tucson, Ariz., with the establishment of its advertising department at that location under the management of Norman H. Tripplehorn. Mr. Tripplehorn has had 20 years' experience as account executive and copy writer with advertising agencies in automotive and technical fields.

Infilco designs and manufactures water, waste and sewage treatment equipment. Its factories and laboratories remain in Chicago, where the company has been located for 58 years.

Groundwater Engineer

Raphael G. Kazmann, consulting groundwater engineer, announces the opening of his office at 419 W. Seventh St., Stuttgart, Ark. He had been with Ranney Method Water Supplies, Inc., Columbus 3, Ohio.

Mr. Kazmann is prepared to make surveys and give definite answers in terms of water available in gallons per day, quality of water, and the best method of getting it out of the ground. He reports that the field of the groundwater engineer includes the expansion and improvement of existing well fields, the artificial recharge of aquifers, the solution of the problem of salt water encroachment, and the formulation of soundly based, enforceable, and equitable groundwater legislation.

A Power Vacuum Leaf Rake That Enriches the Soil

RAKES — VACUUMS — FERTILIZES — ALL IN ONE OPERATION

The POWER-VAC-RAKELAND

ROTARY RAKE The four-foot rotary rake has a universal joint built in, permitting utmost maneuverability. It turns sharpest corners with ease.

POWER VACUUM The leaves loosened from the ground by the rotary rake are sucked by a powerful vacuum fan into the hammer-mill.

HAMMER MILL Here the leaves are ground into a powder. A mesh screen prevents the leaves from blowing out until fully pulverized.

BLOWER OUTLET The blower shoots the leaf powder out upon the ground, where it forms a natural fertilizer for the soil.

Easily attached or detached from your tractor in less than five minutes

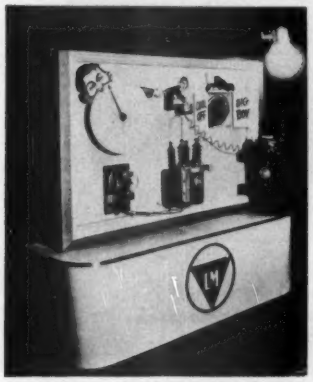
SAVES TIME AND MONEY . . . WRITE FOR CIRCULAR

SPEEDY MFG. CO.
710 So. Fifth Ave.
SIOUX FALLS
S. DAK.

Device Discourages Lengthy Speakers

Sometimes, speakers, enamored of the sound of their own voices, exceed their allotted time—much to the chagrin of the schedule-conscious program committee, and (if a "dull bird") to the annoyance of the audience. Now, a "Talker-Stopper"—guaranteed to prevent engrossed speakers from their flights of fancy—has been announced by the Line Material Co., Milwaukee 1, Wis., manufacturer of electrical distribution, transmission, and street lighting equipment.

The firm utilized some of its electrical equipment and knowledge to devise the Talker-Stopper for use at its sales convention in Chicago. Five minutes before the end of the speaker's allotted time, the caricatures on the panel of the machine moved, causing a red warning light to flash on while the two doors labeled "Cool off, Big Boy" opened to reveal an electric fan in operation.



The long-winded speaker's Nemesis.

And woe betide the speaker who did not heed these warnings! At the end of his allotted time, an oil switch activated by an automatic timer, closed a circuit energizing one of the company's transformer Load Alarms (an overload indicating device) mounted in an empty transformer tank. The resultant clangor brutally recalled even the most engrossed speakers from their flights of fancy. In addition, one of the concern's street-lighting luminaires, the Spherolite, Jr. (upper right-hand corner of photograph) lit up, casting its 2,500-lumen brilliance on a good portion of the panel.

Power Bucket Handles Bulk Materials

A new power bucket accessory for handling bulk materials is available on all model Hi-Duty lift trucks, according to an announcement from the Transitier Truck Co., Portland, Ore. At present, it is obtainable only as original equipment on new Hi-Duty trucks. However, the power bucket can be removed and replaced quickly with lift forks, thus converting the Hi-Duty into a fork lift truck to handling other than bulk materials.

Hydraulically actuated cylinders control the action of this new power bucket.

Constructed of hi-tensile steel with a special plow steel lip, the bucket has a capacity of 9 cubic feet, and features flared sides and lip to facilitate clean-up along walls and into corners.

"Shock dumping" is eliminated because the bucket action is controlled by hydraulically actuated cylinders. It opens and closes through a full 90-degree arc. The bucket can be opened or closed at any desired height up to 7 feet, 10 inches on a 9-foot mast, which will permit over-the-side loading of dump trucks.

THE LONG RANGE VIEW IS IMPORTANT, TOO!

when buying or specifying chlorine gas feeders

In other words, how will the chlorinator stand up under continuous use?

Here's where BUILDERS VISIBLE FLOW CHLORINIZERS shine. Due to their unique design, these chlorinators meter and control chlorine gas in the dry, non-corrosive state. Dry, non-corrosive gas as it comes from the cylinder is regulated, controlled, and metered before it enters the bell jar where it first comes in contact with water. As a double protection, the chlorine control valve is lined with porcelain enamel and has a Tantalum diaphragm with silver valve seat and needle — materials that are completely unaffected by dry chlorine gas and highly resistant to moist chlorine gas.

Another feature is the unitized construction of Builders Chlorinizers. These chlorinators are built of separate assemblies . . . simple, integral units — easy to maintain, easy to replace. For complete information and Bulletins, address Builders-Providence, Inc. (Division of Builders Iron Foundry), 358 Harris Ave., Providence 1, R. I.

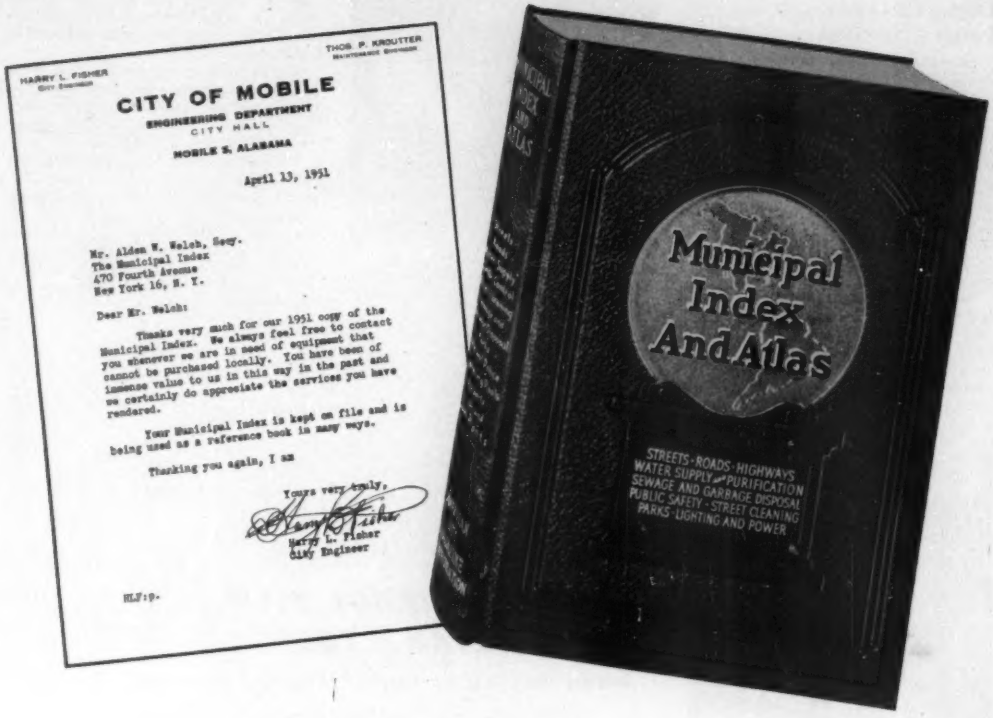
BUILDERS PRODUCTS

The Venturi Meter • Propelaflo and Orifice Meters • Kennison Nozzles • Venturi Filter Controllers and Gauges • Convayoflo Meters • Type M and Flo Watch Instruments • Wheeler Filter Bottoms • Master Controllers • Chlorinizers — Chlorine Gas Feeders • Filter Operating Tables • Pneumatic Meters • Chronoflo Telemeters

BIF INDUSTRIES

BUILDERS-PROVIDENCE

BUILDERS



HARRY L. FISHER
City Engineer

THOS. P. KROUTTER
Maintenance Engineer

CITY OF MOBILE
ENGINEERING DEPARTMENT
CITY HALL
MOBILE 5, ALABAMA

April 13, 1951

Mr. Alden W. Welch, Secy.
The Municipal Index
470 Fourth Avenue
New York 16, N. Y.

Dear Mr. Welch:

Thanks very much for our 1951 copy of the Municipal Index. We always feel free to contact you whenever we are in need of equipment that cannot be purchased locally. You have been of immense value to us in this way in the past and we certainly do appreciate the services you have rendered.

Your Municipal Index is kept on file and is being used as a reference book in many ways.

Thanking you again, I am

Yours very truly,

Harry L. Fisher
City Engineer

HLF:p.

Municipal Index And Atlas
STREETS · ROADS · HIGHWAYS
WATER SUPPLY and PURIFICATION
SEWAGE AND GARBAGE DISPOSAL
PUBLIC SAFETY · STREET CLEANING
PARKS · LIGHTING AND POWER

Yours may be one of the municipalities whose officials not only contact directly the manufacturers advertising in the Municipal Index but who also write, in instances, to the Municipal Index for specific assistance in locating suppliers of municipal equipment and materials.

The 1951 INDEX had been out only a few weeks when we had heard from officials of over 200 towns and cities who wanted information on a couple of hundred types of products.

42 cities inquired about street sweepers
27 cities about fire hydrants
26 cities about garbage trucks
16 cities about sewage-gas and dual-fuel engines
17 cities about lawn mowers
31 cities about air-raid sirens
63 cities inquired about 20 kinds of pipe and maintenance tools

The Municipal Index is the annual buying guide of the Municipal Market.

Municipal Index, 470 Fourth Ave., New York 16, N. Y.

The American City Professional Service Directory

ACKLEY, BRADLEY & DAY
Architects—Engineers—Specialists for 25 years
Swimming Pools, Ice Rinks, Recreation Parks, New Designs, Surveys, Plans and Supervision.
Old Pools Modernized
Correspondence Invited
300 Chestnut Street Sewickley, Pa.

ALLEN & HOSHALL
Consulting Engineers
Mechanical—Civil—Electrical
Municipal Improvements
65 McCall Plaza
MEMPHIS, TENNESSEE

The American Public Utilities Bureau
Organized to assist municipalities and public groups in utility valuations, rates, franchises, accounting and surveys.
John Bauer, Ph.D., Director
280 Broadway, New York City 7

E. T. ARCHER & COMPANY
E. T. Archer E. E. Hagan
Consulting Engineers
Organized 1907
Reports — Designs — Supervision — Water Works — Sewer Disposal — Power Systems
Railway Exchange Bldg.,
Kansas City 6, Mo.

ALBRIGHT & FRIEL, INC.
Consulting Engineers
Water, Sewage and Industrial Waste Problems, Airfields, Refuse Incinerators & Power Plants, Industrial Buildings, City Planning, Laboratory, Reports, Valuations.
121 South Broad St. Philadelphia 7

ALVORD, BURDICK & HOWSON
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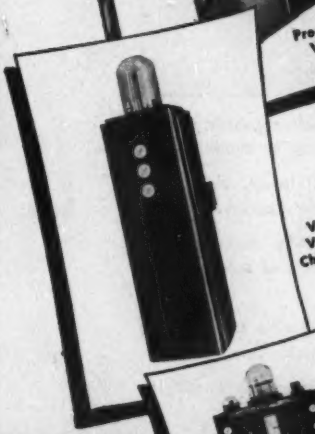

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